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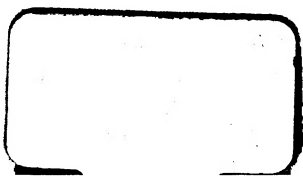
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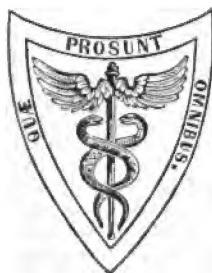


THE
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OF THE
MEDICAL SCIENCES.

EDITED BY
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AMERICAN MEDICAL ASSOCIATION; OF THE AMERICAN PHILOSOPHICAL SOCIETY; OF THE
ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA,
&c. &c. &c.

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TO READERS AND CORRESPONDENTS.

It will afford us great pleasure to receive the papers which Dr. CHURCHILL, of Dublin, and Dr. HIRSCH, of Dantzic, propose to send us.

In our No. for July last we made some remarks relative to the publication of the same article in other journals simultaneously with our own; we now take pleasure in stating that the author to whom allusion was made was absent in Europe at the period of the appearance of his paper, and he has given us satisfactory assurance that he did not design its publication elsewhere until after July. We have every reason to believe that the communication was intended to be *original* for the *American Journal of the Medical Sciences*.

The following works have been received:—

Medico-Chirurgical Transactions. Published by the Royal Medical and Chirurgical Society of London. Vol. XXXV. London, 1852. (From the Society.)

On Syphilis, Constitutional and Hereditary; and on Syphilitic Eruptions. By ERASMUS WILSON, F. R. S., &c. With four coloured plates. Philadelphia: Blanchard & Lea, 1852. (From the Publishers.)

General Pathology, as conducive to the Establishment of Rational Principles for the Diagnosis and Treatment of Disease; a Course of Lectures delivered at St. Thomas's Hospital during the Summer Session of 1850. By JOHN SIMON, F. R. S., one of the Surgical Staff of that Hospital. Philadelphia: Blanchard & Lea, 1852. (From the Publishers.)

Principles of Human Physiology, with their Chief Applications to Psychology, Pathology, Therapeutics, Hygiène, and Forensic Medicine. By WM. B. CARPENTER, M. D., F. R. S., F. G. S., Examiner in Physiology and Comparative Anatomy in the University of London, &c. &c. Fifth American from the fourth and enlarged London edition. With three hundred and fourteen illustrations. Edited, with additions, by FRANCIS GURNEY SMITH, M. D., Professor of the Institutes of Medicine in the Medical Department of Pennsylvania College, &c. &c. Philadelphia: Blanchard & Lea, 1853. (From the Publishers.)

Handbooks of Natural Philosophy and Astronomy. By DIONYSIUS LARDNER, D. C. L., formerly Professor of Natural Philosophy and Astronomy in University College, London. Second Course: Heat, Magnetism, Common Electricity, Voltaic Electricity. Illustrated by upwards of two hundred engravings on wood. Philadelphia: Blanchard & Lea, 1853. (From the Publishers.)

A System of Operative Surgery, based upon the Practice of Surgeons in the United States; and containing a Bibliographical Index and Historical Record of many of their Operations, during a Period of Two Hundred Years. By HENRY H. SMITH, M. D., Surgeon to St. Joseph's Hospital, &c. &c. &c. Illustrated by numerous steel plates. Philadelphia: Lippincott, Grambo, & Co., 1852. (From the Publishers.)

Appendix (C) to the Report of the General Board of Health on the Epidemic Cholera of 1848 and 1849. Abstract of Report, by JAMES WYNNE, M. D., on Epidemic Cholera, as it prevailed in the United States in 1849 and 1850. Presented to both Houses of Parliament by command of Her Majesty. London, 1852. (From the Author.)

The Transactions of the Illinois State Medical Society for the year 1852. Peoria, 1852.

Proceedings of the Third Annual Session of the Indiana State Medical Society, held in the City of New Albany, May, 1852. New Albany, Indiana, 1852.

Quarterly Summary of the Transactions of the College of Physicians of Philadelphia from August to October 6, 1852.

The Physician's Visiting List, Diary, and Book of Engagements for 1853. Philadelphia: Lindsay & Blakiston. (From the Publishers.)

A Practical Treatise on Dental Medicine: being a Compendium of Medical as connected with the Study of Dental Surgery; to which is appended an Inquiry into the Use of Chloroform and other Anæsthetic Agents. Second edition, corrected and enlarged. By T. E. BOND, A. M., M. D. Philadelphia: Lindsay & Blakiston, 1852. (From the Publishers.)

Notes on Carpenter's Human Physiology; containing some Original Views of the Economy of Nature, the Result of Reasoning founded on Observation. By LOUIS MACKALL, M. D. Washington, 1852.

An Account of the Reasoning Process. By LOUIS MACKALL, M. D. Washington, 1850.

Letters on Syphilis; addressed to the Editor of the Union Médicale. By PH. RICORD, Chirurgien de l'Hôpital du Midi, &c. With an Introduction by AMÉDÉE LATOUR. Translated by W. P. LATTIMORE, M. D. Philadelphia: A. Hart, 1852. (From the Publisher.)

The Physician's Pocket, Dose, and Symptom Book: containing the Doses and Uses of all the Principal Articles of the Materia Medica and Chief Official Preparations: also, Tables of Weights and Measures, &c. &c. &c. By JOSEPH WYTHES, M. D., author of the Microscopist, &c. Philadelphia: Lindsay & Blakiston, 1852. (From the Publishers.)

Nature in Disease. An Address before the Norfolk District Medical Society of Massachusetts, at the Annual Meeting, May 18, 1852. By F. E. COTTING, M. D. Boston, 1852.

The Present Mental Attitude and Tendencies of the Medical Profession. Inaugural Address of WORTHINGTON HOOKER, M. D., as Professor of the Theory and Practice of Medicine in Yale College. Delivered in the College Chapel, Oct. 2, 1852. New Haven, 1852. (From the Author.)

Superiority of Sanitary Measures over Quarantine. An Address delivered before the Suffolk District Medical Society at its Third Anniversary Meeting, Boston, April 24, 1852. By HENRY G. CLARK, M. D., one of the Surgeons to the Massachusetts General Hospital. Printed by request of the Society. Boston, 1852. (From the Author.)

Biographical Sketch of J. Kearney Rodgers, M. D., &c. &c. By EDWARD DELAFIELD, M. D. Read before the New York Academy of Medicine, Oct. 6, 1852, and published under its authority. New York, 1852. (From the Author.)

Popular Address of Dr. W. F. BARR before the Medical Society of East Tennessee. Knoxville, 1852. (From the Author.)

An Introductory Lecture delivered on the Opening of the Session of the Medical School, Charing-Cross Hospital, London, Oct. 1, 1852. By EDWARD SMITH, M. D., LL. B., B. A. Lond., &c. &c. London, 1852. (From the Author.)

On the Non-Contagious Character of Puerperal Fever: an Introductory Lecture. By HUGH L. HODGE, M. D., Professor of Obstetrics in the University of Pennsylvania. Delivered Oct. 11, 1852. Philadelphia, 1852. (From the Author.)

A Discourse on the Times, Character, and Writings of Hippocrates. By ELISHA BARTLETT, M. D., Prof. Mat. Med. and Med. Jurisp. Coll. of Phys. and Surg., N. Y. Published by the Class. New York, 1852. (From the Author.)

Introductory Lecture to the Course of Chemistry. Delivered in Jefferson Medical College, Oct. 13, 1852. By FRANKLIN BACHE, M. D. Published by the Class. Philadelphia, 1852. (From the Author.)

The Moral Character of the Medical Profession. An Address introductory to the Course of Public Lectures in the New York Medical College. Session of 1852-53. By E. R. PEASLEE, A. M., M. D., Prof. Phys. and Path. Published by the Class. New York, 1852. (From the Author.)

An Address on the Life and Professional Character of Samuel B. Latta, M. D. By M. B. WRIGHT, M. D., late Professor in the Medical College of Ohio. (From the Author.)

A Memoir on the Life and Character of James B. Rogers, M. D., Professor

of Chemistry in the University of Pennsylvania. By JOSEPH CARSON, M. D., Prof. of Mat. Med. and Pharm. in University of Pennsylvania. Published by the Class. Philadelphia, 1852. (From the Author.)

Materia Medica or Pharmacology and Therapeutics. By WM. TULLY, M. D. Vol. I. No. 1. November, 1852. Springfield, 1852. (From Dr. J. Church.)

Proceedings of the National Pharmaceutical Convention held in Philadelphia Oct. 6, 1852. Published by direction of the Convention. Philadelphia, 1852.

Syllabus of a Course of Lectures on Diseases of the Eye, at the New York Ophthalmic Hospital. By MARK STEPHENSON, M. D. New York, 1852. (From the Author.)

The Fifth Annual Report of the Regents of the University on the Condition of the State Cabinet of Natural History, and the Historical and Antiquarian Collection annexed thereto. Albany, 1852. (From Dr. T. R. Beck.)

The following Journals have been received in exchange:—

Journal des Connaissances Médico-Chirurgicales. Publié par le Dr. A. MARTIN LAUZER. May, June, July, August, 1852.

The Dublin Quarterly Journal of Medical Science. November, 1852.

Medical Times and Gazette. September, October, November, 1852.

Dublin Medical Press. September, October, November, 1852.

The Retrospect of Medicine: being a Half-Yearly Journal. Edited by W. BRAITHWAITE, Lecturer on Obstetric Medicine, &c. January, June, 1852.

Provincial Medical and Surgical Journal. Edited by J. H. WALSH, Esq., F. R. C. S. September, October, November, 1852.

London Journal of Medicine. September, October, 1852.

The Journal of Psychological Medicine and Mental Pathology. Edited by FORBES WINSLOW, M. D. October, 1852.

The British and Foreign Medico-Chirurgical Review. October, 1852.

Monthly Journal of Medical Science. Edited by Professors CHRISTISON, SYMES, SIMPSON, BENNETT, and Drs. MACLAGAN and ROBERTSON. October, November, December, 1852.

Canada Medical Journal. Edited by R. L. MACDONNELL, M. D., and A. H. DAVID, M. D. September, October, November, December, 1852.

The New York Journal of Medicine. Edited by S. S. PURPLE, M. D. September, 1852.

The American Journal of Pharmacy. Edited by WM. PROCTER, Jr. October, 1852.

Southern Medical and Surgical Journal. Edited by L. A. DUGAS, M. D. October, November, December, 1852.

N. W. Medical and Surgical Journal. Edited by W. B. HERRICK, M. D., assisted by B. A. JOHNSON, M. D. September, October, November, 1852.

Boston Medical and Surgical Journal. Edited by J. N. C. SMITH, M. D. October, November, December, 1852.

Transylvania Medical Journal. Edited by L. J. FRAZER, M. D. September, October, November, December, 1852.

[No. 1, Vol. II. of this Journal has not reached us.]

New York Medical Times. Edited by H. D. BUCKLEY, M. D. October, November, December, 1852.

The Medical Examiner. Edited by F. G. SMITH, M. D., and JOHN B. BIDDLE, M. D. October, November, December, 1852.

L'Union Médicale de la Louisiane. Rédacteurs C. DELERY, M. P. B., et E. MARTIN, D. M. P. Nos. 9, 10, 1852.

The New Jersey Medical Reporter. Edited by JOSEPH PARRISH, M. D. October, November, December, 1852.

Buffalo Medical Journal. Edited by AUSTIN FLINT, M. D. October, November, December, 1852.

The Western Journal of Medicine and Surgery. Edited by L. P. YANDELL, M. D., and T. S. BELL, M. D. October, November, December, 1852.

Medical Recorder. By the MEMPHIS MEDICAL COLLEGE. October, November, 1852.

The New Orleans Monthly Medical Register. Edited by A. F. AXSON, M. D. October, November, 1852.

The Western Medico-Chirurgical Journal. Edited by J. F. SANFORD, M. D. October, November, 1852.

The American Journal of Science and Arts. Conducted by Professor B. SILLIMAN and B. SILLIMAN, Jr., and JAMES D. DANA, and Dr. W. GIBBS. November, 1852.

The New Hampshire Journal of Medicine. E. H. PARKER, M. D., Editor. October, November, December, 1852.

The American Journal of Insanity. Published by the New York State Lunatic Asylum, Utica. October, 1852.

The Western Lancet and Hospital Reporter. Edited by L. M. LAWSON, M. D., and GEORGE MENDENHALL, M. D. October, November, 1852.

The New Orleans Medical and Surgical Journal. Edited by A. HESTER. November, 1852.

The Stethoscope and Virginia Medical Gazette. Edited by P. C. GOOCH, M. D. October, November, December, 1852.

The Ohio Medical and Surgical Journal. Edited by RICHARD L. HOWARD, M. D. November, 1852.

The American Journal of Dental Science. Edited by CHAPIN A. HARRIS, M. D., D. D., and A. A. BLANDY, M. D., D. D. S. October, 1852.

The Charleston Medical Journal and Review. Edited and published by D. J. CAIN, M. D., and F. P. PORCHER, M. D. November, 1852.


The St. Louis Medical and Surgical Journal. November and December, 1852.

The New York Journal of Pharmacy. Published by Authority of the College of Pharmacy of the City of New York. Edited by B. W. MCCREADY, M. D. December, 1852.

[The Nos. of this Journal for April, May, June, July, August, September, October, and November have *not* reached us.]

Communications intended for publication, and Books for Review, should be sent, *free of expense*, directed to ISAAC HAYS, M. D., Editor of the American Journal of the Medical Sciences, care of Messrs. Blanchard & Lea, Philadelphia. Parcels directed as above, and (carriage paid) under cover, to John Miller, Henrietta Street, Covent Garden, London; or to John Wiley or G. P. Putnam, New York; or W. D. Ticknor, Boston; or M. Hector Bossange, Lib. quai Voltaire, No. 11, Paris, will reach us safely and without delay. We particularly request the attention of our foreign correspondents to the above, as we are often subjected to unnecessary expense for postage and carriage.

All remittances of money, and letters on the *business* of the Journal, should be addressed *exclusively* to the publishers, Messrs. Blanchard & Lea.

 The advertisement-sheet belongs to the business department of the Journal, and all communications for it should be made to the publishers.

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XIV. Operative Surgery Illustrated: containing more than nineteen hundred Engravings; including two hundred Original and fifty Coloured Drawings, with Explanatory Text. By R. U. Piper, M. D. Also, a Chapter upon the Use of Ether in Surgery, from the Transactions of the American Medical Association, written, at the Request of a Surgical Committee of that body, by Henry J. Bigelow, M. D., Professor of Surgery in the Medical School of Harvard University. Boston: Ticknor, Reed, & Fields, 1852: 8vo. pp. 384.	- 165
XV. Second Report of the General Board of Health on Quarantine. Yellow Fever. Presented to both Houses of Parliament, by command of Her Majesty. London, 1852: 8vo. pp. 414.	
Appendix (C) to the Report of the General Board of Health on the Epidemic Cholera of 1848 and 1849. Abstract of Report, by James Wynne, M. D., on Epidemic Cholera, as it prevailed in the United States in 1849 and 1850. Presented to both Houses of Parliament, by command of Her Majesty. London, 1852: 8vo. pp. 93.	
Further Observations on that portion of the Second Report on Quarantine by the General Board of Health, which relates to the Yellow Fever Epidemic on Board Her Majesty's Ship Eclair, and at Boa Vista in the Cape De Verde Islands. By J. O. McWilliam, M. D., F. R. S., R. N., Medical Inspector of Her Majesty's Customs. London, 1852: 12mo. pp. 40.	- 167
XVI. General Pathology, as conducive to the establishment of Rational Principles for the Diagnosis and Treatment of Disease. A Course of Lectures, delivered at St. Thomas's Hospital during the Summer Session of 1850. By John Simon, F. R. S., one of the Surgical Staff of that Hospital, and Officer of Health to the City of London. Blanchard & Lea, Philadelphia, 1852: 8vo. pp. 211.	- 171
XVII. Recherches sur la Locomotion du Cœur. Par A. A. Verneuil, Docteur en Médecine, etc. etc. Paris, 1852: 4to. pp. 58. An Inquiry into the Locomotion of the Heart. By A. A. Verneuil, M. D.	- 172
XVIII. Principles of Human Physiology, with their Chief Applications to Psychology, Pathology, Therapeutics, Hygiène, and Forensic Medicine. By W. B. Carpenter, M. D., F. R. S., F. G. S., Examiner in Physiology and Comparative Anatomy in the University of London, &c. &c. Fifth American from the fourth and enlarged London edition. With three hundred and fourteen illustrations. Edited, with additions, by Francis Gurney Smith, M. D., Prof. of the Institutes of Medicine in the Medical Department of Pennsylvania College, &c. Philadelphia: Blanchard & Lea, 1853: 8vo. pp. 1091.	- 179
XIX. The Principles and Practice of Dental Surgery. By Chapin A. Harris, M. D., D. D. S., Professor of the Principles and Practice of Dental Surgery in the Baltimore College. Fifth edition, with two hundred and thirty-six illustrations. Lindsay & Blakiston, Philadelphia, 1853: pp. 812.	- 179
XX. Quarterly Journal of Microscopical Science, including the Transactions of the Microscopical Society of London. Edited by Edwin Lankester, M. D., F. R. S., F. L. S.; and George Busk, F. R. C. S. E., F. R. S., F. L. S. No. 1, October, 1852; with four lithographic illustrations.	- 180

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ART. I.—*On the Use of Bebeerine and Cinchonia in the Treatment of Intermittent Fever.* By WM. PEPPER, M. D., one of the Physicians of the Pennsylvania Hospital.

THE high price of quinia, and the apprehension in the minds of some lest the supply of this important preparation might ultimately fail to meet the increasing demand, have naturally induced medical men to investigate the antiperiodic or febrifuge properties of other remedies. Arsenic, copper, zinc, and iron; as also dogwood, willow, oak, and numerous other tonics, have from time to time been used with more or less success in intermittent fever; but, with the exception of the first named, most of the remedies have been in a great measure abandoned in the treatment of this disease.

Quite recently, the attention of the profession has been directed to the sulphate of bebeerine as being possessed of very decided tonic and antiperiodic power. This remedy was first introduced into general notice by Dr. Rodie, of the British Navy, and was afterwards more fully investigated by Dr. Maclagan, of Edinburgh. He found the sulphate possessed of considerable febrifuge power, scarcely inferior to the same salt of quinia, and in some respects even preferable to it; thus it is reported to be less stimulating, and not so prone to produce headache, singing in the ears, or deafness. By some it has even been asserted that relapses are less frequent after its use than after the sulphate of quinia. From these flattering accounts, I was induced, during the month of June last, to administer this remedy in four of the cases of intermittent fever reported below (Cases XIV., XV., XVI., and XVII). By referring to these cases, it will be perceived that in two of them it proved promptly successful, whilst in the remaining two it entirely failed, and had to be abandoned. In one instance, the patient relapsed at the end of one week, and although the bebeerine was again freely administered, it only tended to mitigate

or modify the disease. It certainly did not appear to produce headache, tinnitus aurium, or acceleration of the pulse; in one case, however, when given in large doses, it provoked vomiting. The bebeerine, though less bitter than quinia, is more nauseous, and therefore more liable to be rejected in cases where the stomach is delicate. Judging from the limited number of cases in which I have seen this remedy used, it appears to be less efficacious than the sulphate of cinchonia or quinia, though at the same time it must be admitted to possess very decided febrifuge powers, and may, perhaps, be well adapted for many of those cases where constitutional peculiarities render the preparations of bark objectionable. Dr. Patterson, in the *Medical Examiner* for May, 1852, has reported two cases of obstinate intermittent, in which the bebeerine effected a permanent cure after the failure of quinia. In Demerara, a decoction of the nut is the common remedy for this disease, and is said to be most generally successful. Notwithstanding these favourable reports, however, it is evident that a more extended observation is still necessary to establish fully the true value of this new remedy.

The more immediate object of the present communication, however, has been to invite the attention of the profession in this country to the undoubted efficacy of sulphate of cinchonia in the treatment of intermittent fevers. Hitherto, this important alkaline principle appears to have been thrown aside as possessing little or no value, or used by the more dishonest, simply for the adulteration of quinia; and this erroneous impression, as to the comparative inefficacy of cinchonia, probably originated in the fact that quinia was first fairly tried in the treatment of intermittent fevers, and having proved highly efficient in this disease, it naturally disinclined medical men to a full investigation of the medical properties of the remaining alkaline principle contained in bark. Unfortunately, too, the first essay with cinchonia did not fully realize the expectations of the observer, and its further use was, therefore, for the time being, prematurely abandoned. In 1821, and soon after it had been fully discovered, by the labours of Pelletier and Caventon, that the febrifuge property of bark depended upon the presence both of quinia and cinchonia, a series of experiments were instituted by Chomel, with the view of ascertaining the comparative merits of these different substances in the treatment of intermittent fever. In his report to the Academy of Sciences, in Paris, he alludes to numerous instances in which the sulphate of quinia proved perfectly successful, but only refers to a single case as having been treated with the sulphate of cinchonia. This patient had been suffering with the disease for two months, in the quotidian form, and also had great enlargement of the spleen; at first, only six grains of the cinchonia were administered during the apyrexia; but, as this failed to check the disease, on the following day twenty grains were administered, with the effect of completely arresting the paroxysms. Upon reducing the dose, however, it appears that the patient soon relapsed, and was not permanently cured until twenty-four grains were given during the intermission. When we bear in mind that the above case

had been of long duration, and was complicated with visceral enlargement, it is by no means surprising that the disease was not checked by small doses of cinchonia at the first effort, or that it should even have recurred after it had once been arrested by larger doses; for, under similar circumstances, it is well known that the same difficulties will often occur under the use of quinia, or any other treatment that may be instituted. And yet there is good reason to believe that the partial want of success in this single instance has had much to do in establishing the common opinion that cinchonia is less energetic than quinia, and consequently requires to be given in a stronger dose.

A more thorough and impartial trial of this important remedy was, however, made by Dr. Bally, in 1825. He gave the sulphate in twenty-seven cases of intermittent fever; and, although only six or eight grains were administered during the intermissions, he succeeded in promptly checking twenty-five of the cases, sixteen of which were of the tertian, and nine of the quotidian type, the average duration of the treatment being only four days. The remaining two cases were quartans, and these were checked quite as promptly as this most obstinate form generally is, by quinia or any other therapeutic agent; in one instance the disease lasted only two days, and in the other it was permanently checked by the end of one week. From these observations, the above-named author concluded that the sulphate of cinchonia arrested acute paroxysmal affections with great promptitude, and that but a moderate dose was necessary for this result; he also inferred that it was less irritating, and that it might, therefore, be more generally administered than the same salt of quinia; he was even disposed to ascribe many of the cures usually attributed to this last-named substance to the well-known fact that it was no uncommon thing to adulterate quinia with cinchonia. In the *Dictionnaire Universel de Matière Médicale*, par Mérat et De Lens, allusion is made to numerous instances in which the cinchonia had been successfully used by French and Italian physicians; amongst these may be mentioned Dufour, Petroz, Potier, Mariani, and Bleyne; by all of whom it was fully shown that cinchonia was at least as efficacious as quinia. In confirmation of the same views, we also find it stated, in *Christison's Dispensatory*, that "prejudice, together with the unquestionable energy of quinia as a remedy, has led to the other alkaloid, cinchonia, being overlooked in practice. The equally strong prepossessions, however, which were long entertained in favour of crown bark as a febrifuge and stomachic, though it contains but little quinia, or perhaps none at all, and the proofs which have been given of the great efficacy of the gray, or Huanuco bark, would justify the inference that cinchonia, too, is eminently active. Accordingly, trials made with it by Dr. Bardsley, in England, as well as various practitioners of credit in France, Germany, and Italy, seem to leave little doubt that it is scarcely inferior to quinia in the treatment of intermittent, and some continental writers even maintain that, while equally energetic, it is likewise even less likely to dis-

order the stomach in large doses." In like manner, in the *United States Dispensatory*, Dr. Wood states: "There is little doubt, however, that *cinchonia* possesses febrifuge properties little, if at all, inferior to those of quinia; and should the source of the latter begin to fail, the pale bark would come into more extensive use for the preparation of the former."

In fifteen of the cases reported below, the *cinchonia* was administered with the most signal success, and fully confirmed the above statements as to its efficacy. In a majority of these, the disease had been of many months' duration, and was attended with enlargement of the spleen, and more or less impairment of the general health; yet, notwithstanding these serious difficulties, it was promptly checked at the first effort in eleven of the cases, and in two of these (XIV. and XVI.), the *bebeerine* had first been unsuccessfully tried. In only two instances (XII. and XIII.), was it necessary to administer the *cinchonia* a second time for the arrest of the paroxysms; and of the whole number, as far as it could be ascertained, but two relapsed (I. and V.), and these were promptly and permanently checked by again resorting to the *cinchonia* in full doses. In many of these cases, the quinia had been previously used with only temporary relief; but as no accurate account could be obtained from the patients either as to the doses or exact circumstances under which it had been administered, but little importance can be attached to this fact in estimating the comparative value of these two remedies. Judging from my experience in former seasons in similar cases, I am fully convinced that the *cinchonia* proved quite as efficacious as quinia, and occasionally, indeed, it appeared to be even more prompt. In no instance, that I am aware of, did it produce vomiting or other indications of gastric irritation; but when given in large doses, it gave rise to the same fulness of head as follows the use of quinia. In all the cases, the sulphate of *cinchonia* was given in solution with the addition of a few drops of sulphuric acid; my first impression was that it was more soluble than the same salt of quinia, but a more careful examination convinced me that such was not the case. In taste, the two salts appeared closely to resemble each other, but the *cinchonia* is, perhaps, the least bitter. It is to be regretted that, in some of the cases of intermittent fever, now about to be reported, the *cinchonia* had not been administered in smaller doses, with the view of ascertaining the minimum quantity by which the disease could be arrested; having found, however, that in most instances of inveterate ague, at least sixteen grains of quinia were necessary to insure success, I was also induced to give this amount of *cinchonia* during the apyrexia in every case. In a previous part of this communication, it was stated that the same success had been obtained by Dr. Bally, from the use of only six or eight grains during the intermission; and should these results be confirmed by future observation, they will go far to show that *cinchonia* is not only equal to, but absolutely more potent than quinia. In several cases of neuralgia and intermittent fever which have fallen under my observation in private practice, the *cinchonia* has succeeded after the failure of quinia in similar doses; but we

should be careful how we adopt this result as conclusive evidence of the superiority of the former remedy, since it is by no means improbable that the system may have been already more or less favourably impressed by the previous use of the quinia; and it is for this reason that I am not even disposed to attach too much importance to the two instances above referred to, in which the cinchonia proved promptly successful after the failure of the sulphate of bebeerine in large doses.

From the very full and satisfactory manner in which this subject has been investigated by previous observers, the present report may, by some, be considered as a work of supererogation. But when we bear in mind that this remedy has scarcely been used in our country, and that, notwithstanding the above statements, many are still disposed to doubt its febrifuge power, it has appeared to the writer a matter of some importance that the attention of the profession should once more be invited to this subject. Not only is cinchonia an efficient remedy, but it derives additional importance from the fact that, at the present time, it can be supplied at far less than half the price of quinia. The poor are now in a measure debarred from the use of this last-named remedy, owing to its high cost; but this evil could, in a great degree, be obviated by, the general introduction of cinchonia. The immediate effect would be a reduction in the price of quinia; but at the same time it is evident that the increased demand for cinchonia, would necessarily enhance the value of this remedy—though it is hardly probable that either of these alkaloïds would at any future time again command the high price now asked for quinia.

CASE I.—C. W., seaman, aged thirty-three years, entered the hospital on the 12th of March, suffering with intermittent fever. From his statement, it appears he had contracted his disease at Chagres last September, from which time, up to the present, he has had repeated attacks in the tertian form. His present attack commenced about five days before his admission, and had now assumed the quotidian type, the paroxysm commencing generally between the hours of ten and twelve in the morning. The spleen was much enlarged, skin slightly icterode, and, at the same time, he was exceedingly anæmic.

Two grains of the sulphate of cinchonia were administered in the evening, and the same dose was to be repeated the following morning every two hours until he had taken sixteen grains. On the 13th, however, the chill commenced much earlier than usual, and before the patient had taken a second dose, so that the medicine had to be discontinued. By midday, the fever had subsided, and the cinchonia was resumed, one grain every hour to the above-named amount. From this time up to the 24th he had no return of the disease, and, during this period, he used two grains of the cinchonia with five of Vallet's carbonate of iron three times a day; strong iodine ointment was also applied over the spleen. During the afternoon of this day, he experienced a slight chilly sensation followed by considerable perspiration; from this time he remained well, up to April 5th, when he again had the same train of symptoms, and these continued to recur for several consecutive days at about 11 A. M.

Thursday, April 7, or just four weeks from the time of his admission, he had a decided chill, followed by fever and perspiration; accordingly, on the

following morning at 6 o'clock, he commenced taking two grains of cinchonia to be continued for eight consecutive hours. From this time, he had no return of his chill, but, as a precautional measure, two grains of the cinchonia, and five of pil. carb. ferri. were continued three times a day, during his stay in the house. He left the institution on the 12th, apparently perfectly well, his colour having greatly improved, and the spleen being reduced to nearly its natural dimensions.

In the above case, it will be perceived that, although the disease was promptly arrested by the administration of sixteen grains of cinchonia, it returned ten days after in an exceedingly mild and modified form; this was again followed by an interval of the same duration, but the paroxysms were not permanently checked until sixteen grains were once more given during the apyrexia. When, however, we consider the long duration of the disease, the patient's anæmic condition, and the great enlargement of the spleen, which complicated the case, there is certainly no reason to be dissatisfied with the effects of the remedy. A more successful result could not probably have been attained from quinia under existing circumstances.

CASE II.—J. D., seaman, aged twenty-three, entered hospital April 17, labouring under quotidian fever of two months' duration, states that he contracted the disease at Chagres, and that he had upon several occasions taken quinia without relief; he could not, however, specify the exact amount of this medicine which had been administered. His skin was now sallow, lips pale, and the spleen much enlarged and painful on pressure. Upon the day of his admission he had a severe chill, followed by fever, lasting five hours, and ending in copious perspiration. The paroxysm commenced at about ten in the morning, and the same evening he took sulph. cinchonæ grs. ii, every two hours, for four consecutive doses; the same treatment was resumed early on the morning of the following day, until he had taken in all grs. xvj. From this time he had no return of the disease, and was now directed to take five grains of Vallet's ferruginous mass with two grains of the cinchonia three times a day. Under this treatment his complexion rapidly improved; by the 10th of the following month, the spleen was reduced to its natural size, and he now left the hospital apparently in perfect health.

In this instance, the cinchonia was so signally efficacious that further comment is unnecessary.

CASE III.—R. C., seaman, aged thirty-five, entered the hospital on the 19th of March; stated that he had contracted intermittent fever at Mobile, and that he had now been suffering with this disease in the tertian form for the last two months, the paroxysms generally commencing about 11 A. M. On the day of his admission, he had a severe and protracted chill at about seven in the morning, followed by high fever and ending in copious perspiration. On the 21st, the paroxysm commenced about 4 A. M., and it was, therefore, deemed expedient in anticipation of the next attack to commence with the cinchonia on the following morning; two grains to be administered every two hours until he should have taken, in all, sixteen.

On the 23d, the day of the expected paroxysm, the patient remained perfectly well, and so continued up to the 9th of the following month, April, when he left the hospital to all appearances in full health. After the arrest

of the paroxysms, as in the former cases, he was kept steadily upon the use of cinchonia and Vallet's carbonate of iron, two grains of the former and five of the latter, three times a day.

In this instance, the disease had been of short duration, and, being unattended by any enlargement of the spleen, or serious disorder of health, was, of course, more amenable to treatment.

CASE IV.—M. D., labourer, aged thirty, admitted April 17, for intermittent fever of the quotidian type. He contracted the disease about eighteen months ago in the State of New Jersey; during the past winter, however, he had been free from it, and it only reappeared about one week before his admission, the paroxysms coming on daily about 8 A. M. His complexion was a little sallow, but no enlargement of the spleen could be detected, nor had his general health suffered much. On the evening of the 17th, he took grs. ij of sulph. cinchonia every two hours for four consecutive doses, and this same plan was pursued the following day, so that, by ten o'clock on the morning of the 18th, he had taken, in all, grs. xvi.

From this time he remained perfectly well, but to guard against a relapse, he was directed two grains of cinchonia with five of the iron three times a day during his stay in the house. By request, he left the institution on the 27th of the same month in excellent health.

CASE V.—E. M., a young woman, aged twenty-five, entered the hospital April 26th, suffering with intermittent fever, stated that she had been residing in the city for the last eighteen months, and that upon no previous occasion had she been subject to ague; her present attack was only of four days' duration, the paroxysms generally coming on in the forenoon. No visceral enlargement could be detected, nor was her constitution materially impaired, though, at the same time, she was naturally nervous and more or less pallid. On the day after her admission, the chill recurred as usual, and she was accordingly directed to take grs. ij sulph. cinchonia every two hours, commencing at 2 P. M., and continuing the treatment up to bedtime; the following morning, April 28th, the same plan was to be pursued until, in all, grs. xvi had been taken. From this date, she had no return of the disease; but, during her stay in the house, she took, three times a day, grs. ii of sulph. cinchonia, and grs. v of pil. ferri. carb. On the 16th of May, or about three weeks after her admission, she was discharged perfectly well.

She was readmitted May 24th, and stated that the disease had returned on the third day after her discharge, and had now assumed the tertian form; the paroxysms commencing about 5 A. M. Her bowels being constipated, five grains of blue pill were directed in the evening, to be followed in the morning by a Seidlitz powder; on the 26th and 28th, the chill commenced at about the hour above indicated, no antiperiodic having been administered up to this time. On the evening of the 29th, she took eight grains of the cinchonia before bedtime in two-grain doses, and at an interval of two hours; on the following morning, eight grains more were in like manner administered in anticipation of the expected paroxysm. There was, however, no return of the disease up to 13th of June, about which time she left the institution apparently perfectly well. It should also be stated that, from the time of the last paroxysm up to the period of her discharge, the sulph. cinchonia and iron were continued in small doses three times a day, as in the former cases.

It has long been remarked by careful observers that there is a tendency in

intermittent fever, when checked by whatever means, to recur on the fourteenth or twenty-first day after the last paroxysm; in the above case, it will be perceived that a relapse took place two or three days after leaving the hospital, or just three weeks from the occurrence of the last attack, and was, most probably, owing to some indiscretion on the part of the patient.

CASE VI.—J. L., seaman, entered the hospital April 17, for intermittent fever; stated that he had contracted the disease in North Carolina last autumn, and that it then persisted for eight weeks, but had not recurred during the past winter. The first paroxysm this spring occurred two days previous to his admission, and was renewed on the 17th and 19th; on the evening of the 21st, eight grains of sulph. cinchonia were administered, and the same amount on the following morning before nine o'clock. By this treatment, the disease was promptly checked, and did not return up to April 27th, when he left the hospital perfectly well. During his stay in the house, however, he was kept under the use of sulph. cinchonia grs. ii, and pil. carb. ferri three times a day. It may also be important to state that in this case there was no enlargement of the spleen, or any serious constitutional disturbance. As he had left the institution rather prematurely, he was requested to return in case of relapse; but not having been heard of up to the end of June, the presumption is that the cure was permanent.

CASE VII.—J. W., labourer, admitted May 8, for intermittent fever, under which he had been suffering since last July. During the winter, the attacks were irregular, both in form and duration; but, for four days previous to admission, the paroxysms had come on every afternoon, preceded, however, with but slight chilliness. Upon several occasions he had used quinia with temporary relief, but his health was now much impaired; lips pallid; skin slightly icterode; spleen greatly enlarged.

On the 9th, about 4 P. M., he was seized with a severe chill followed by high fever, and ending in profuse perspiration; during the same evening and following morning, sixteen grains of sulph. cinchonia were used, grs. ii being given every two hours.

On the 11th, he escaped his chill, and continued perfectly well up to May 27; by this time, his colour was restored; the spleen had regained its natural dimensions, and, in fact, his health appeared fully re-established. He was, accordingly, discharged, with the full understanding that the sulph. cinchonia, grs. ii, and pil. ferri. carb., which he had been taking three times a day since in the house, should still be continued for some days; he was also requested to return in case of relapse, but as nothing was heard from him up to the end of June, it is highly probable that the cure was permanent.

CASE VIII.—H. B., labourer, aged twenty-five, admitted on the 18th of May, for intermittent fever; he stated that, for the last four days, he had been subject to irregular chills and fevers; the skin was not icterode, nor was there any enlargement of the spleen. At the time of his admission, he was suffering with fever, for which he took the neutral mixture; on the following day, however, he appeared perfectly well. On the 20th (two days after admission), he had a severe chill about 7 A. M., and, in the course of the same day, another paroxysm, but much milder than the first. On the following day, there was no return of the disease, but, on the 22d, or fourth day after admission, he had a heavy chill about daylight, and another, equally severe, three hours after, followed by high fever and copious perspiration.

23*d.* Being free from fever to-day, he commenced with the sulphate of cinchonia at 3 P. M., and took two grains every hour up to ten at night. After this, there was no return, and, as usual, he was directed two grains of cinchonia with five of iron three times a day. On the 28th, he was discharged on account of the crowded condition of the wards, but was particularly charged to continue the above treatment for two weeks, and, at the end of this time, to return and report his condition. Accordingly, he came to the hospital on the 8th of June, and stated that he had remained perfectly well since leaving the institution.

From the confused account given by the patient of his previous symptoms, it at first was no easy matter to decide upon the type of his disease; as, however, he had two distinct chills upon alternate days, it became evident that he was labouring under a *duplicated* or *doubled tertian*.

CASE IX.—D. B., labourer, entered the hospital April 21; stated that he contracted the disease last autumn in Maryland, and that he suffered repeated attacks of intermittent fever in the tertian form during the past winter; seven days previous to his admission, however, the paroxysms came on every evening. The spleen was perceptibly enlarged, and his countenance was pallid and somewhat sallow.

On the 22*d* and 23*d*, he had a severe chill about 8 P. M.; and, accordingly, on the following day, 24th, he took cinchonia sulphat. grs. ii every hour from 3 P. M. to 7 P. M. He had no further attack from this date, and under the use of small doses of cinchonia and iron, soon regained a healthy appearance, whilst at the same time the spleen was rapidly reduced in size.

Owing to the crowded state of the wards, he was obliged to leave on the 28th of same month; he, however, was supplied with iron and cinchonia sufficient for two weeks, with the full understanding that he should return in case of relapse. Not having heard from the patient up to the end of June, it is highly probable that his recovery was permanent. It is worthy of remark, in connection with this case, that the disease, though of long duration, and attended with considerable disorder of health, and much enlargement of the spleen, was, nevertheless, promptly checked by *ten grains* of the sulphate of cinchonia.

CASE X.—W. J., seaman, admitted May 29, for intermittent fever. The disease was contracted last summer at New Orleans; he there had it in the tertian form for four or five weeks, and it again returned in the autumn; but during the winter, though not well, he had no decided chill or paroxysm. This spring it returned towards the end of April, and has since recurred every other day in the morning, between the hours of eleven and twelve. At the time of his admission the skin was slightly icterode, and the spleen somewhat enlarged.

On the day after his admission the chill came on as usual at about 12 M.; and, accordingly, in anticipation of the next paroxysm, on the 1st of June he was directed two grains of the sulphate of cinchonia every hour from 4 A. M. to 11 A. M. There being no return of the disease, from this date he was ordered two grains of the cinchonia and five of the iron three times a day; this treatment was continued for two weeks, when he left the institution apparently in full health.

CASE XI.—J. W., German labourer, entered the hospital, May 28, for intermittent fever. He contracted the disease last August in New Jersey, but had no return until the end of March ensuing; since then, however, the

paroxysms have come on daily at about 2 P. M. At the time of admission, his face was pallid and bloated, and the spleen greatly enlarged.

On the day of admission he had a severe chill at 7 P. M.; and, on the following day, it came on at the usual hour, about 2 P. M. On the 30th, he commenced with two grains of sulph. cinchonia every hour from 6 A. M. to 2 P. M. inclusive; but it failed to check the disease, and the chill came on as usual soon after taking the last dose. On the 31st, he took the same quantities at the same hours, and from this time had no further return. During his stay in the house, strong iodine ointment was freely applied over the region of the spleen, and, at the same time, two grains of the cinchonia and five of iron were regularly administered three times a day. On the 12th of the month following, June, he left the institution greatly improved in health; the spleen also having nearly regained its natural size.

CASE XII.—A. K., labourer, aged twenty-one, entered on the 2d of June, for-intermittent fever. He had been suffering with the disease for one month, at first in the quotidian, and then in the tertian form. At time of admission he was pale and sallow, and had considerable enlargement of the spleen, which was also tender on pressure.

On the day following, he had a severe chill in the course of the morning, and accordingly on the 4th he commenced with the cinchonia, taking two grains at 6 P. M., and the same dose at bedtime; on the following morning the same treatment was resumed at 4 A. M., and continued every hour up to 9 A. M., making in all sixteen grains.

Soon after the last dose had been administered, however, the chill came on and was followed by fever, which lasted until evening. June 6, being his well day, he took but six grains of the cinchonia in the course of the twenty-four hours. In anticipation of the paroxysm on the 7th, it was determined to give the cinchonia in larger doses, and nearer to the usual time of the paroxysm; accordingly, he took four grains at five, six, eight, and nine o'clock in the morning. From this time the disease was checked, and did not return up to the 19th, when he left the hospital much improved in health, the spleen also being reduced to its natural size.

CASE XIII.—J. W., seaman, aged twenty-six, admitted June 18, for intermittent fever. The disease had been contracted at New Orleans, in the early part of this month; he then had a paroxysm for four or five consecutive days, which speedily yielded to sulphate of quinia, and did not again recur until the 25th, or about one week after entering the hospital. At the time of admission, there was some sallowness of skin, and slight enlargement of the spleen; the patient also suffered with great prostration, and it was especially for this distressing symptom that he sought medical aid. He was accordingly directed full diet and a bottle of porter; also two drachms of the compound tincture of gentian three times a day.

About 1 P. M., on the 25th, as above stated, he had a severe chill followed by fever and perspiration; on the following day, sixteen grains of the sulphate of cinchonia were prescribed in two-grain doses in anticipation of an expected paroxysm. At 3 P. M., however, the chill returned with equal violence.

On the 27th, he again took the same amount of cinchonia, commencing about 8 A. M., and taking two grains every hour up to 3 P. M. The cinchonia this time proved perfectly successful, and there was no further return of the disease up to July 9, when he left the hospital apparently in perfect

health. During his stay in the house, the cinchonia and iron were daily administered in two and five grain doses as in all the previous cases.

It is to be regretted that in this, as well as in several of the other cases above reported, the patients could not be kept sufficiently long under observation to ascertain fully the durability of the cure. In every instance, however, where the discharge took place within two or three weeks after an arrest of the paroxysms, strict injunctions were given to return in case of relapse; and as nothing to the contrary was heard from these patients, it is fair to conclude that the cures were most probably more or less permanent.

In the four following cases, the bebeerine was given in place of the cinchonia, with the view of testing their comparative merits in the treatment of intermittent fever.

CASE XIV.—J. H., seamstress, aged nineteen, admitted June 5, had suffered last summer and autumn with intermittent fever, which she contracted whilst residing in New Jersey. The paroxysms had been repeatedly checked by quinia, but invariably returned at the end of a week; during the winter, however, she remained free from them, but did not feel well, and always complained of pain in the region of the spleen. In March, the disease again returned, sometimes assuming the tertian, and at others the quotidian type; under the use of quinia, she again improved, but the disease was not eradicated, and she continued to have her good and bad days up to the time of admission. At this time she was pallid, and had considerable enlargement of the spleen.

June 5, at 9 A. M., she had a severe chill, followed by fever and perspiration; another paroxysm occurred on the 7th, at about midday. In anticipation of the chill on the 9th, two grains of the sulphate of bebeerine were administered at 5 A. M., and to be repeated every hour until she had taken sixteen grains. The paroxysms did not return, and the patient was so well pleased with the result that, contrary to orders, and unknown to the nurse, she continued the medicine in four-grain doses, from 12 M. up to 5 P. M., making in all some forty grains that she had taken in the course of the day. The only effect from the bebeerine in these large doses was sickness of stomach, unattended, however, by headache, giddiness, or ringing in the ear, such as generally follows the use of quinia in similar doses.

Although the bebeerine and iron (two grains of the former and five of the latter) were continued three times a day, the disease recurred on the 13th. Accordingly, on the 15th, the bebeerine was again prescribed every hour, from 5 A. M. up to 12 M. inclusive. Immediately after the last dose, however, the chill came on, and was followed by high fever and severe headache. A paroxysm of equal severity came on at 12 M., on the 17th, showing clearly that the disease was in no manner influenced by the treatment. Accordingly on the 19th, it was determined to substitute the cinchonia in two-grain doses every hour, from 6 A. M. to 10 A. M. inclusive, making in all ten grains, during the apyrexia.

From this time there was no return of the disease up to the 30th, when she left the house in perfect health, having regained her flesh, strength, and colour, and the spleen being reduced to its natural dimensions. As in the former cases, from the time of the arrest of the paroxysms, she had taken, during her stay in the house, two grains of the sulphate of cinchonia, with five grains of Vallet's carbonate of iron, three times a day.

CASE XV.—M. H., domestic, aged twenty-seven, admitted June 8, for intermittent fever, which commenced about one month ago. The disease was then checked by the use of Peruvian bark, but it soon returned, and for two weeks previous to admission she had a paroxysm every day at about 7 P. M. Her general health was not much impaired, but the spleen was somewhat enlarged. On the day of admission, the chill came on as usual in the evening, and accordingly on the following day in anticipation of its return, she took two grains of the sulphate of bebeerine every hour from 11 A. M. to 6 P. M. inclusive. From this time, the disease was checked, and on the following day, two grains of the bebeerine, with five of iron, were given three times a day during her stay in the hospital. She was discharged in full health on the 25th, not having had a return since the 8th. In this instance, the bebeerine did not excite vomiting, as in the former case, but it produced some acceleration of the circulation, the pulse having risen from 78 to 100.

CASE XVI.—H. P., seaman, aged twenty-six, admitted June 9, for intermittent fever. The disease had been contracted at Panama, four months ago, since when it has continued to recur at irregular intervals; upon several occasions, quinia had been taken in large doses, but only with the effect of suspending the paroxysms for a few days. For one week previous to admission, he has had a return every day at about 4 P. M., and was now icterode, and had great enlargement and induration of the spleen.

On the 10th, the bebeerine was ordered in two-grain doses every hour, from 8 A. M. up to 4 P. M.; by this treatment, though the disease was not checked, the paroxysm was postponed until 6 P. M., and was much less severe than on former occasions. On the 11th, the same plan was pursued as on the previous day; this time, however, with the effect of completely arresting the disease for the space of one week, or up to the 19th, when he had a relapse, the paroxysm coming on at about 2 P. M.

Two days after, or on the 21st, the chill returned at about the same hour, showing clearly that the disease had now assumed the tertian type. Up to this time, he had continued the bebeerine and iron (two grains of the former and five of the latter three times a day); as this treatment appeared only to modify the disease without checking it, it was determined to substitute the sulphate of cinchonia as in the former cases. Accordingly on the 23d, two grains of it were administered every hour from 8 A. M. to 1 P. M., making in all only twelve grains. The only result was a postponement of the paroxysm until 4 P. M., or two hours later than the previous chill. The next day, however, the cinchonia was administered in like manner, and from this time there was no return up to July 9, or a period of more than two weeks, since the last attack. He was now discharged at his own request, and left the hospital apparently in perfect health.

CASE XVII.—J. W., seaman, aged twenty-one, admitted June 10, labouring under a paroxysm of intermittent fever. The disease had been contracted last autumn in Savannah, and has continued to recur at irregular intervals up to the present time. The chill generally recurred on alternate days, at about 11 A. M.; his health was much impaired, skin icterode, spleen much enlarged and indurated.

On the 12th, the attack came on at the usual time, and was followed by severe fever, which lasted three hours. In anticipation of the next paroxysm, he was ordered, on the 13th, two grains of the bebeerine every hour from 6 P. M. to 9 P. M., and the same to be resumed on the following morning at

6 A. M. and continued up to 9 A. M., making in all sixteen grains during the apyrexia. From this time there was no return, and under the use of small doses of bebeerine and iron, his health continued gradually to improve; on the 30th, he was discharged, not having had a chill for the last eighteen days, and his spleen being reduced to its natural size.

In conclusion, I would state that the above trials with cinchonia were instituted at the suggestion of Dr. Carson, and that I have been much aided in the undertaking by the valuable notes furnished by Dr. A. Hewson, Resident Physician.

ART. II.—*Medical and Surgical Notes of Campaigns in the War with Mexico, during the years 1845, 1846, 1847, and 1848.* By JOHN B. PORTER, M.D., Surgeon U. S. Army. (Continued from Vol. XXIV. p. 30.)

Treatment of Gunshot Wounds, continued.—When a musket ball has passed through a fleshy part, the wound may be dressed with a little lint, adhesive plaster, and a few turns of a roller, and afterwards the cold-water dressing, or lead lotion, both excellent, may be applied. The cold lead-water poultice, after the wounded are placed in hospital, so light as not to cause pain or uneasiness by its weight, is a good application, and does not require such frequent renewals as the lotion—a consideration, when every hospital attendant has as much duty to perform as he can turn his hand to. In the first part of the treatment, both Guthrie and Hennen strongly advise cold applications; but if they affect the patient unpleasantly or the wound become stiff and painful, warm ones must be substituted; and poultices are the best, as being more durable in their influence than fomentations. When the bone of a limb is injured, and amputation is not considered necessary, much the same treatment is advisable, after removing splinters and foreign bodies. The effect of cold applications should be carefully watched, and the too long continuance of poultices in the subsequent stage avoided. It is never expected that a gunshot wound, however simple, will heal by the first intention; nor is it expected that a wound of this character can, by the use of cold dressings, or by any treatment whatever, be prevented from suppurating to some extent; but great good may be accomplished by cold dressings in the first part of the treatment, by preventing extensive cellular inflammation and consequent profuse suppuration. Suppuration and sloughing are always expected to occur, more or less, in all gunshot wounds, particularly at the entrance and exit of the ball, but it by no means follows that sloughing will inevitably take place in the whole track of the bullet; and a free use of cold dressings may do much to prevent extensive inflammation, deep sloughing, and profuse suppuration. Mr. Guthrie says:—

"An idea is entertained by some, that the whole track of a gunshot wound must suppurate, and a slough of dead matter be thrown off; but this is an erroneous opinion."

In all gunshot wounds, whether simply through the flesh, or with injury of the bone, whenever the part becomes stiff and painful, poultices for a short period are beneficial.

Mr. Guthrie, very properly, is a strong advocate for the employment of cold water in gunshot wounds; nor is he so much opposed to the use of poultices as at first view might appear, but only to their abuse.

"Cold water is," he says, "in my opinion, the proper application to gunshot wounds in persons of a healthy habit of body; it may be applied in many people during the whole progress of the cure with the best effect; and when it is admissible, it ought to be constantly used, unless in those cases in which simple compress and bandage may be considered sufficient. Cold water is not, however, an infallible, or even always an advantageous remedy; there are many persons with whom cold applications do not agree; there are more with whom they disagree after a certain period, and in either case they should not be persisted in. Cold does no good in any stage of inflammation when the sensation occurring from the first application of it is not agreeable to the feelings of the patient; when, in fact, it does not give relief; for if it produce a sensation of shivering, or an uncomfortable feeling of any kind, with stiffness of the part, it is doing harm; and a change to the genial sensation of warmth will not only prove more agreeable but more advantageous. This occurs in general about the period when suppuration has taken place; and cold in such cases is preventing the full extent of the action which warmth encourages. Fomentations are then proper; and if a poultice be preferred for convenience by day or by night, an evaporating one of bread will be found sufficient. In the spring of the year, the marshmallow makes an excellent poultice, and so do turnips, gourds, carrots, &c., independently of oatmeal, linseed meal, Indian meal, or other farinaceous substances."—*Gunshot Wounds*, p. 66.

In Mexico, we had linseed meal, generally corn meal; a good poultice could always be prepared from the bark of the slippery elm (*ulmus fulva*), of which we had a supply; and the leaf of the prickly-pear (*cactus opuntia*), growing abundantly in all parts of Mexico, is also easily made into an excellent poultice.

Bandages are exceedingly useful in the treatment of gunshot wounds, but it is not advisable to apply them too soon.

"Rollers ought not to be applied surgically until some days have elapsed, and it is inexpedient to employ them in the field of battle, even if they were useful, except where some parts are to be kept in position; because when they are employed in the first instance, they soon become stiff and bloody, are for the most part cut, and are seldom preserved after the first dressing, so as to become useful at the period when the surgical application of a roller is indispensable."—*Guthrie*.

In gunshot wounds, through the thigh especially, after a few days have elapsed, rollers are very useful; and at a later period, when the limb, both from local and general irritation, has become emaciated, the muscles hanging almost like so many strings from the bone, the roller is of incalculable benefit, by supporting the muscles, and bringing the sides of the wound in the track of the ball into close contact.

Fracture from Gunshot.—Mr. Guthrie says:—

“The surgery of the campaign of Waterloo was not the same with the surgery of the Peninsula. You will naturally ask me why it was not? and the answer is a very simple one: that they were not the same people, or when they were the same, the ablest had marched with the army to Paris, or were solely engaged with the wounded officers. The hospitals were principally in charge of others who had served but little on the field of battle, and it was the wounded under their care that were open to remark. One instance will suffice to explain my meaning. After the last battle in the Peninsula, no one on the third day could have found a gunshot fracture of the thigh in the bent position on the side; after the battle of Waterloo no person could have found one in any other. * * * The position of a fractured femur must be essentially of one kind, viz., straight; for it is impossible to keep a man's thigh in the bent position on the side, and himself in the same situation. No power that is likely to be employed can prevent his turning on his back, and the union, if it takes place at all, must then be at an angle.”—*Clin. Lectures*, pp. 16 and 52. “It must be borne in mind, that all compound fractures of the thigh should be placed in the straight position, and if possible, from the moment of injury.”—*Gunshot Wounds*, p. 378.

We have here another instance of practice in obedience to the law of authority. In obedience to the precepts of Mr. Pott, it appears that the English surgeons, for many a campaign, placed patients with compound fracture of the thigh on the side, and the practice was not finally exploded until the last of the campaigns in the Peninsula. The natural position of a patient who is badly injured or badly diseased is on his back, nor can he be made to remain on his side. If a patient with a compound fracture of the femur be placed on his side, the consequence will be that, before the expiration of the twenty-four hours, he will turn on his back, or partially turn, and his body will be in one direction and his foot in another. In every serious disease, whether it be fracture or fever, the natural position is on the back; and it is of little use to try to keep the patient on his side. The permanent position on the side is one of the most painful to which a patient can be subjected. The patient being on his back, “the bent position forwards, or on an inclined plane, is defective.” (*Guthrie, Clin. Lectures*, p. 52.) And the best position in gunshot fractures of the femur, all things considered, is on the back with the limb extended.

Dilatation or scarification (débridement) of gunshot wounds is common in the French service. Mr. Hennen says:—

“There still prevails among foreign surgeons, and particularly the French, a strong prejudice in favour of the immediate scarifications or dilatations of all gunshot wounds.”—p. 60. “The practice during the Peninsular War was, never to dilate without a precise object in view, which might render an additional opening necessary.”—*Guthrie, Gunshot Wounds*, p. 82. “The indiscriminate dilatation of all gunshot wounds, without a distinct and specific object in view, is now very justly abandoned.”—*Sir G. Ballingall, Outlines Mil. Surg.* p. 219.

Mr. Alcock states, that all the wounded Spaniards who fell into the hands of the French surgeons after the assault of Irun were “unmercifully estrelated by the French bistoury.” These few extracts serve to show the views and practice of English military surgeons.

"The question of dilating wounds with the knife seems to be disputed at present in France with as much keenness as it was in the days of J. Bell and Hunter in our own country; and the impropriety of making precautionary incisions, or indeed incisions of any kind, save for the removal of foreign bodies, or the securing of vessels, is anything but generally admitted, although strongly enforced by M. Baudens."—*Med.-Chir. Rev.* Oct. 1848, p. 547. "M. Jobert objects to the *dilatation of wounds*." * * * "M. Begin, on the other hand, approves of the preventive *débridement*, or dilatation of wounds, and he thinks it is necessary in gunshot wounds, simply because they are gunshot wounds, at least in all such as are deeply seated, or are covered by strong aponeuroses."—*Med.-Chir. Rev.* January, 1849, pp. 271, 272.

M. Baudens, chief surgeon to the French army in Algeria, decidedly condemns the *preventive débridement*: "*Le débridement préventif des plaies d'armes à feu est toujours nuisible.*" The knife may be required to remove foreign bodies, to secure bleeding vessels, to divide tense fasciæ, and evacuate deep-seated matter, and to relieve engorgement of the vessels. I would recommend, in all cases, that a ball or other foreign body be at once removed, if it can be felt, no matter how deeply it may be situated.

Hemorrhage from Gunshot Wounds—primary and secondary.—On this question the highest authorities are at variance. Hennen says:—

"And here I must entreat the young army surgeon not to allow himself to be lulled into a fatal security, by a supposition that secondary bleedings from gunshot wounds are of but imaginary importance, and of rare occurrence. The supposition is absolutely erroneous."—*Mil. Surg.* p. 150.

S. Cooper, *Surg. Dict.*, says:—

"As the ends of the torn vessels are contused and compressed, gunshot wounds have at first less propensity to bleed seriously than most other wounds, unless vessels of importance happen to be injured. In the beginning there may even be little hemorrhage, though a considerable artery be so hurt that it afterwards sloughs, and a dangerous or fatal bleeding arises. * * About a week after the battle of Waterloo, the cases of hemorrhage on the loosening of the sloughs were tolerably numerous; not at all coinciding with a recent calculation that the proportion of such examples, requiring the ligature of arteries, is only three or four in a thousand. (*Guthrie*.) In Holland, the truth of Mr. Hunter's observation upon this point appeared to me to be completely confirmed."

On the other hand, Mr. Guthrie, second to no one in military surgery, says:—

"I have proved from official documents, that the great dread entertained of secondary hemorrhage in gunshot wounds was groundless."—*Preface to Gunshot Wounds*. "The erroneous idea which has pervaded alike medical books and the minds of medical men, that gunshot wounds do not bleed unless great arteries are wounded, has arisen from generalizing too much."—*Gunshot Wounds*, p. 5. "The distinctions usually made, that gunshot wounds do not bleed at the moment of injury, unless a large artery be wounded, and that they do generally bleed, and often profusely, after suppuration has taken place, cannot be too soon banished from the mind of every surgeon, as they lead to very bad practice, and give much unnecessary trouble; for instead of waiting with the greatest anxiety for hemorrhages, when the sloughs separate from wounds in the vicinity of great arteries, the surgeon may think himself peculiarly unfortunate if he meets with a greater proportion of cases than I have mentioned."—*Ibid.* p. 10.

Sir George Ballingall states, that

"The proportion of cases requiring the ligature of arteries from secondary hemorrhage is stated by Mr. Guthrie, I believe, with great truth, not to exceed three or four in a thousand, exclusive of hemorrhage from hospital gangrene, inordinate sloughing, or broken bones."—*Outlines of Mil. Surg.* p. 325.

On the first point, "that gunshot wounds do not bleed unless great arteries are wounded," I apprehend that Mr. Guthrie is right, for I have seen a good many cases of gunshot wounds, where the hemorrhage was profuse, there being no large artery injured. And, in regard to the second point—"cases of hemorrhage on the loosening of the sloughs"—so far as my own experience goes, Mr. Guthrie is entirely in the right, for I have never seen a case of hemorrhage after the separation of the slough.

Not a single case of hospital gangrene, tetanus, or secondary hemorrhage was seen by the writer during the war with Mexico.*

Bayonet and lance wounds were not common in Mexico. The brilliant charges of opposing columns in battle are almost always charges on paper.

"Although much has been written, and more stories have been told (indeed, so often told that the people who relate actually at last believe them), about charging with the bayonet, their crossing and locking, the heroic efforts made by the parties, and so forth, that it might be supposed these wounds were of frequent occurrence; the fact is, however, otherwise."—*Guthrie*.

"A punctured wound made with a lance or bayonet," says Mr. Guthrie, "is always a contused wound."†

* In 1843, a man had the whole hand and wrist so shattered, by the premature discharge of a cannon, that amputation of the forearm was necessary; which was done by the circular incision. Not a single artery could be found, excepting one of the interosseous. After remaining open awhile, the stump was carefully dressed, as in the regular operation, and a close watch was kept over the patient until all danger from hemorrhage had ceased. No accident occurred in the progress of the case, and the man recovered, although the whole arm and the side of the thorax were severely burned at the time of the explosion.

† In the early part of 1838, during the disturbances on the Niagara frontier, a mutinous, drunken soldier attacked a sentinel on duty at Buffalo, N. Y., who, in self defence, gave a thrust with the bayonet, which entered between the seventh and eighth left ribs, wounding the lung, from which there was tremendous hemorrhage. Being absent at the particular time, Surgeon H. L. Heiskell, Medical Director, saw the wounded man for me, and bled him copiously. He was again bled so soon as reaction and hemorrhage came on. These decisive bleedings, doubtless, saved the man's life. An attempt was made to keep the wound closed, but, after a day or two, this was found impracticable, by reason of difficult respiration, and the restless state of the patient, blood having accumulated in so great quantity as to fill the left side of the thorax and encroach on the right lung. Emphysema had also extended over the whole side, to the neck and face, contributing to the restlessness and difficulty of respiration. The wound was, therefore, reopened, and the patient laid on the wounded side. The effused blood gradually flowed out of the wound; nor were incisions necessary to remove the emphysema, the air in the cellular membrane being gradually removed by the natural process. A profuse discharge of sanious and fetid matter followed, diarrhoea and hectic finally supervened, and the patient at one period

The Mexican lancers had been looked upon as a formidable arm of the enemy, but they were, in truth, the worst troops of their service. But few lance wounds, therefore, came under my notice.

Lieutenant —, Hays's Texan Rangers, received two lance wounds at Monterey, on the morning of the 21st of September, 1846. The right gastrocnemius muscle was transfixed. The neck was also transfixed, from left to right, by a lance which barely missed the cervical vertebræ. These wounds were a long time in getting well, and required a good deal of attention, high inflammation supervening.

Private Fielding Alston, Hays's Texan Rangers, received a lance wound through the right arm, on the morning of the 21st of September, 1846, at Monterey. High inflammation came on, and it was a considerable time before the patient was fit for duty. In both cases, cold applications were freely employed at first, and poultices subsequently.

Sabre wounds were as uncommon as bayonet wounds. Case V., in my first paper, improperly placed among gunshot wounds, was one of the best instances of sabre wounds which came under my notice. These wounds occurred mostly in the guerilla warfare, in the vicinity of Vera Cruz, in 1847.

Antiphlogistic Treatment of Gunshot Wounds.—The free employment of venesection, as advised by Hennen and others, was seldom necessary in Mexico. To a certain extent, it might have been required in wounds of important organs, but caution was necessary. The English soldier is much better off, as regards diet, exercise, pure air, peace of mind, and all the comforts of life, than the English labourer (Hennen, *Mil. Surgery*, p. 68), while the daily fare of the American labourer is abundant, and he is sure of earning a decent support for himself and family. Hence, the change of the citizen to the soldier, in the English service, is an elevating process, tending to improve the general system; while, in the American service, the change is, for a time, depressing, particularly in the volunteer service, in which there is change of diet, climate, habits, everything; add to all these, fevers, dysentery, &c., and it will be seen that caution was required in relation to profuse venesection. A body of English labourers, marched suddenly to the field to encounter the vicissitudes of an active campaign, would scarcely bear the lancet so freely, in general, as advised by most British military surgeons. M. Vidal strongly recommends the application of leeches around gunshot wounds; but it is to be recollected that, in military practice, when leeches are most wanted it is impossible to procure them. Cathartics, laxatives, and antimonials are of the greatest benefit. "Few subjects," says Hennen, "bear full and free purg-

was so low as to be considered moribund. He was treated, in the later stages, by nourishing diet, anodynes, port-wine, brandy, &c., and finally recovered. Dr. Heiskell and myself attended him anxiously, as much, perhaps, in relation to the legal bearings of the case on the sentinel (a much better man than the wounded one) as a regard for our patient. The case may be considered, on the whole, as an example of remarkable recovery.

ing better than soldiers;" and I suspect that few military surgeons can be found who will be disposed to contradict his opinion. Attention to the secretions is essential; and antimony, with acetate of ammonia, which act on the liver and skin, often supersedes the necessity of general bleeding. Occasionally blue-pill, followed by some of the neutral salts, &c., are of great importance. A full dose of opium, or one of the salts of morphia, at night, with antimony, and sometimes a few grains of calomel, followed by a laxative next morning, is frequently of the greatest benefit; always using opiates cautiously in wounds of the cranium.

Diet.—The diet of the soldier is at all times a most important consideration. *La soupe fait le soldat*, may be regarded as a military axiom; and herein consists the difference between the old soldier and the new levy; the difference between the officer of experience and the one who has just mounted his epaulettes.* The diet of the rank and file on duty being so important, that of the sick soldier is still more so; and the cookery of the sick man's little comforts forms one of the most difficult of the surgeon's duties in a large hospital, for I have never seen the oldest hospital steward, or cook, who knew how to prepare the most common article of diet for an invalid—as arrowroot, chicken-broth, beef-tea, &c., without instruction.

The diet of the wounded in Mexico was more nourishing than that usually recommended by systematic writers. At Monterey and Vera Cruz, they were subjected to various debilitating agents; and, as soon as the first inflammatory symptoms had subsided, and there was the least appetite, the patients were put upon nourishing diet—as chicken-tea and broth, beef-tea and broth, beef-soup, coffee, fresh meat, &c. &c., and, in certain cases, an allowance of wine or even brandy.

M. Vidal says: "Perhaps, in France, we are somewhat too severe in the restriction of nutritious food, and keep our patients too long on a low diet. My own experience confirms the truth of the observation that purulent absorption goes on more readily in persons who are not sufficiently nourished during the healing of their wounds. * * The English surgeons, who follow this plan after amputation, obtain perhaps more success than we can boast of in France."

M. Sedillot states: "In the last expedition to Constantine (in Algeria), I cured a great number of the wounded, in whom immense purulent collections had formed in the lower limbs, by prescribing freely brandy, coffee, fresh meat, &c., and by the use of warm dry applications. * * Many a case of purulent infection may be prevented by the timely administration of an emetic and the use of a nutritious and even a moderately stimulating diet."

M. Malgaigne "Considers his results satisfactory, and owing to the treatment. He avoids, as much as possible, all scarifications and incisions, employs

* I well remember what an intelligent volunteer soldier told me in the general hospital at Vera Cruz, in 1847: That nothing was more discouraging than to encamp by the side of a regular regiment, in which the diet was good, police good, and everything orderly and comfortable, and contrast its condition with the misery and destitution in his own regiment. I told him that the officers ought to teach the men how to perform their duties. "How can our officers, sir, teach us our duties, when they don't know their own?" was the response. Similar complaints were not uncommon among the volunteer soldiers.

only the simplest dressings, and gives food to the patients as soon as any appetite is present. With regard to venesection, he scarcely ever employs it; being a pupil of Broussais, he formerly recommended the practice, but has been deterred from its use by the fatal effects which he has witnessed. M. Malgaigne gives a document which has never been before published, the statistical account of the mortality amongst the wounded admitted into the hospitals of Paris in 1814. In these tables, French, Prussian, Austrian, and Russian subjects had been entered, together with a statement of the mode of treatment. All, except the Russians, were submitted to a severe regimen. The mortality was, French soldiers, 1 out of 7; Prussian, 1 in 9; Austrian, 1 in 11; Russian, 1 in 27."—*Am. Journal*, October, 1848.

This difference of mortality might have been owing somewhat to circumstances, for the French may have been dispirited by defeat, and the Russians may bear wounds, hardships, and privations better than the other races, though scarcely to the extent shown in the tables. The starvation principle may well be abandoned in fevers and grave injuries, after the very first stage has passed, the reason being so obvious that an attempt at explanation seems wholly unnecessary.

The successful treatment of wounds depends greatly upon the climate, and upon the season of the year, as observed by Baron Larrey in his campaigns in Egypt and Syria. Says the Baron:—

"But if the wounds of our soldiers in Egypt and Syria, during the unfavourable season of Khamsyn (hot winds from the southern desert) were attended with many unexpected symptoms in consequence of the atmosphere at this season; on the other hand, solutions of continuity were readily healed in Egypt during the prevalence of the north winds. The sky is at this time clear and serene; the scorching and uniform heat is always tempered by the winds which begin to blow at sunrise, and continue while the sun remains above the horizon. * * * This combination of circumstances (the clear sky and north winds, good surgical dressings, and the healthy situation and condition of the hospitals) will serve to show why the wounds of amputated limbs healed before the thirtieth day; * and why the operation for the stone was followed by a cure in fifteen days: why the operation of trepanning succeeded; and, finally, why large wounds, which penetrated the thorax and abdomen, with those of the extremities attended by a loss of substance, were cured so soon, and without ill consequences."

Malte-Brun divides all Mexico into three regions with distinct climates, as follows:—

"La contrée du Mexique présente trois régions bien distinctes pour le climat. Les environs de la Vera Cruz, les états maritimes de Cohahuila, du Texas, du Nouveau Léon, de Tamaulipas, d'Oaxaca, de Sonora-et-Cinaloa, les lisières meridionales de ceux de Mexico, de la Puebla, de Mechoacan, et les côtes de la Californie, sont des terrains bas et entrecoupés de collines peu considérables. Leur élévation au-dessus de l'océan ne dépasse pas 300 mètres; leur température moyenne est de 25 à 26 degrés du thermomètre centigrade, c'est-à-dire de 8 à 9 degrés plus grande que la chaleur moyenne de Naples. Ces régions fertiles, que les indigènes nomment *tierras calientes*, c'est-à-dire *terres chaudes*, produisent en abondance du sucre, du coton, des bananes et de l'indigo; mais les vents du nord y soufflent depuis le mois d'Octobre jusqu'au mois de Mars, et souvent ils refroidissent l'air à tel point que le thermomètre centigrade à 16 degrés."

* Not by the first intention, it is presumed, for the Baron was a great enemy to the primary union of wounds after amputation.

In this region, less than 1,000 English feet above the level of the sea, are situated Matamoras, Tampico, Vera Cruz, and the whole coast on the Mexican Gulf.

“ Sur la pente de la Cordillère, à la hauteur de 1,200 à 1,500 mètres, règne constamment la douce température du printemps: les fortes chaleurs et le froid excessif y sont également inconnus. C'est la région que les Mexicains appellent *tierras templadas*, ou *terres tempérées*; la chaleur moyenne y est de 20 à 21 degrés; malheureusement cette hauteur est celle à laquelle les nuages se soutiennent au-dessus des plaines voisines de la mer, circonstance qui fait que ces régions tempérées, situées à mi-côte, sont souvent enveloppées dans des brumes épaisses.”

In this region, 3,937 to 4,921 feet above the level of the sea, are situated the pleasant towns of Jalapa and Monterey. Saltillo is 319 feet above the extreme limit of the *tierra templada*.

“ La troisième zone, désignée par la dénomination de *tierras frias*, ou *terres froides*, comprend les plateaux élevés de plus de 2,200 mètres au-dessus du niveau de l'océan.”

In this region, more than 7,218 feet above the level of the sea, are the city of Mexico, Fresnillo, and Zacatecas. Santa Fé, New Mexico, is 171 feet below this region or zone, this town being, according to Wislizenus, 7,047 feet above the level of the sea.

The wounded of our army at Palo Alto and Resaca de la Palma did better than the wounded of the other battle-fields in Mexico, for several reasons; the army was in the low country near the sea, and under the influence of sea-breezes; malaria* had not become developed; the men were hale and hearty after the severe winter at Corpus Christi; and the invalid and worthless portion of the troops had been left behind.

At Monterey the reverse obtained; it was late in the season; there were hot days and cold nights; malaria was developed; the men were reduced by fatigue, exposure, and sickness; and the army was at an elevation of more than 4,000 feet above the level of the sea; consequently, the wounded did not recover so well as at Palo Alto and Resaca.

At Vera Cruz, and in the adjacent *tierra caliente*, in 1847, the wounded were exposed to a combination of those causes which seem to produce disease, and many of them died of yellow fever. Yet, even here, there were some extraordinary recoveries, as Evans and Williamson, cases in my first paper. A captain of the Louisiana battalion fought a duel with a brother captain, in the summer of 1847, and was shot through both thighs just posterior to each os femoris, which escaped injury. With duelling pistols at ten paces, it may well be conceived that the wounds were severe; and, considering the season of the year, the climate, the previous dissipation of the patient, &c., they might well be looked upon as highly dangerous. I was not present on the

* Malaria is used as a convenient term and nothing more; no reference is made to its nature, here or elsewhere.

field of battle, but was called in consultation immediately after the fight. The patient entirely recovered.

This case offered a good example of the effects of a bullet at the apertures of entrance and exit. The patient was of immense size, with Herculean limbs; and the orifices of exit were torn, ragged, and much larger than those of entrance. I have supposed this to be always the fact. M. Blandin, however, maintains the contrary, and believes that the "error has been retained so long, from the experiments of Dupuytren and others having been made on inextensible materials instead of upon so elastic a body as the skin. M. Blandin had never met with a case in 1830 or 1848, in which the aperture made by the entrance of the ball was not larger than that of its exit. M. Malgaigne confirms M. Blandin's observations. When we find competent observers giving, with cases before their eyes, exactly contrary opinions, we are disposed to agree with M. Roux, that there is no absolute rule, much depending upon the force, distance, and direction of the impelling power." For my own part, I have always believed that the aperture of entrance was smaller than that of exit, and I must still be permitted to continue of the same opinion, notwithstanding the reputation of MM. Blandin and Malgaigne; and I still believe that the elasticity of the common integument and muscles is the main reason why the orifice of exit is so much larger than that of entrance.

In contrast with the foregoing case, Lieutenant R——, 15th infantry, received a wound from a musket-shot in General Cadwalader's affair at the *Puente Nacional*, about twenty miles from Vera Cruz, the bullet passing through the muscular portion of the thigh. All the wounded in this affair were sent to the Vera Cruz General Hospital as soon as practicable, and this particular wound never appeared badly; but the patient gradually sunk, without febrile action, and died on the 4th of July, 1847. He had black vomit on that day, and was of a light lemon-yellow, dying of yellow fever, although he had no fever, in the common acceptation of the term.

In the city of Mexico, elevated, according to Humboldt, 7,469 feet above the level of the sea, all the causes of disease which were in action at Monterey, operated in a still greater degree, and the wounded, it is well known, recovered badly. Great elevation may be a cause of disease, and may complicate the treatment, for every one knows the difficulty of respiration in a rarefied atmosphere several thousand feet above the level of the sea. "The great mountain plateau," says Humboldt, "which surrounds the volcano of Antisana, is 13,473 feet above the level of the sea. The pressure of the atmosphere is so inconsiderable at this height, that blood will flow from the nostrils and mouth of the wild bull when hunted with dogs.* In the city of

* The dogs must suffer in some degree, but not so much as the bull. Man and all living things have an organization adapted to their habits and wants, and the perseverance and fleetness of the dog in the chase, in all regions, depending upon his organization, are well known. The condor, according to Humboldt, by means of membran-

Mexico, elevated more than 7000 feet, the rarefaction of the atmospheric air is so great that the difficulty of respiration and inability to sustain violent and long-continued exertion are well known, both in man and animals. Decarbonization of the blood or hæmatosis is not accomplished as in the low country; perspiration is wholly suppressed, or is so rapidly evaporated as to be insensible; and it is well remembered how rejoiced our officers were on returning from the city, while enjoying the luxury of a free perspiration in the *tierra caliente* in and around Vera Cruz. These causes of disease, variable temperature of the day and night in autumn, the development of malaria, the fatigue and exposure of the troops, imperfect hæmatosis, and the suppression or rapid evaporation of the perspiration, appear sufficient to account for the mortality among our troops in the valley of Mexico, from wounds, fever, and dysentery. The check to perspiration, itself a cause of disease, may have greatly contributed to the difficulty of treatment, and to the mortality. One thing seems certain, that altitude near the equator is not equivalent, in the treatment of disease as well as in other phenomena, to high latitude.

Abstract of the report of sick and wounded of the artillery battalion and Duncan's battery, for the quarter ending 30th September, 1846.

Diseases.	July.	August.	September.	Total.
Fevers	15	14	36	65
Diarrhœa	14	43	41	98
Dysentery, acute and chronic . .	19	58	29	106
All others of the digestive system .	6	8	9	23
Catarrh	5	16	36	57
All others of respiratory system .	0	2	1	3
Brain and nervous system . . .	0	1	0	1
Urinary and genital organs . . .	1	3	1	5
Rheumatism, acute and chronic . .	0	4	1	5
Abscesses and ulcers	6	20	7	33
Wounds and injuries	9	29	51	89
All others	25	48	17	90
	<hr/> 100	<hr/> 246	<hr/> 229	<hr/> 575
Remaining at last report				30
Aggregate				<hr/> 605
Sent to general hospital				64
Returned to duty				508
On furlough				1
Died				2
Remaining sick				30
				<hr/> 605

One died in the battalion hospital in July, and one in August, both of continued fever. Two died in September, in division general hospital, in my charge, both of gunshot wounds.

our air-sacs, is able to soar to the altitude of more than 23,000 feet, a height at which the barometer scarcely stands at 12.7 inches, and he is also able to descend suddenly to the sea-shore; thus, in a few hours, traversing, as it were, all climates.

MEAN STRENGTH.

Month.	Officers.	Enlisted men.	Total.
July	21	255	276
August	27	507	534
September	30	586	616
Average			475½

This brings us to the surrender and quiet possession of the city of Monterey, the establishing of the general hospital of the division in the *Casa Arista*, and the quartering of our division in the houses of the town.

Monterey, the capital of the State of Nuevo Leon, containing about 12,000 inhabitants, is situated in latitude 25° 40' 13" N.; longitude 100° 25' 36" W., on the left bank of the Rio San Juan, which disembogues into the Rio Grande a few miles below Camargo. The San Juan is formed by three main branches; the first or source, Arroyo* San Juan, arises in the vicinity of Saltillo and passes by Monterey on the south and south-east, sweeping partially around and encircling it; the second branch passes within two or three miles of Marin, twenty-five miles from Monterey; and the third is near the little village of Ramos, about thirty-two miles from Monterey. Between Ramos and Marin, about thirty miles from Monterey on the north, is a mountain ridge of moderate height which looks towards Seralvo,† and bounds the basin or valley on that side; on the south is the Sierra Madre itself, ten or fifteen miles from Monterey, rising several hundred feet above the waters of the San Juan, and covered two-thirds of the way to the summit with magnificent pines, the upper portion being destitute of vegetation. To the east of Monterey, about twenty miles distant, is an elevated spur of the Sierra Madre, the saddle mountain, *Silla Camanche*, from its resemblance to the Camanche saddle; on the west and south-west are detached ridges and spurs of the Sierra Madre, among them the Mitre Mountain, so named from its resemblance to a bishop's mitre. Within the basin formed by these mountain ridges are elevations of moderate height, as the *Loma de Independencia*, the *Collado de la Federacion*, &c.; and all these mountains and elevations belong to the limestone formation. Near Monterey there are also, on the plains, extensive limestone quarries, from which most of the houses of the town are constructed, and the water of all the streams is strongly impregnated with lime. The valley, thirty-five or forty miles in its greatest diameter, is alluvial, with the exception of the elevations and mountain ridges; it is well watered by numerous streams, large and small; and is fruitful, being covered by well-cultivated fields, and the gardens and lots of the town are filled with beautiful fig and orange groves. Both the town and valley are subject to autumnal intermittents and remittents, the inhabitants suffering from them in 1846 as well as our own troops.

* Arroyo, a rivulet, a small river.

† The orthography of this word is not settled; in our official accounts it is *Seralvo*; it is often *Ceralvo*.

In quiet possession of Monterey, in quarters, with plenty of provisions, and the arduous duties of the campaign at an end, it might have been anticipated that our division especially, would enjoy an almost entire immunity from disease. Not so; the period of rest is the period of danger to armies, particularly in unhealthy countries; "The period of smallest loss to an army," says Mr. Alcock, "is a victorious and vigorously prosecuted campaign." Could our army have marched to Saltillo and San Luis Potosi within a week after the capitulation, made daily marches, fought a battle or two, and suffered hardships and privations, it is verily believed that our cases of disease would have been a sixth less. This is in conformity to experience. In the terrible unhealthy summer of 1834, I attended a detachment of dragoons on an expedition from Fort Gibson, west of the State of Arkansas, to the great western prairies; and several days before our return to that post, we had not a man sick. In less than two weeks after encamping in the immediate vicinity of the fort, the whole detachment was so sick with severe remittent, that there were scarcely well men to take care of the sick. In the arduous summer campaign in Florida, 1841, when the Seminoles were pursued into their fastnesses and their corn cut up, the troops in the field were more healthy than those who remained at the majority of posts; convalescents from fever would volunteer to go on a "scout," preferring the casualties of Florida swamp service to the wear and tear of a monotonous existence at a worthless interior post, and they returned all the better for the service; their health had improved. Baron Larrey states, *Memoirs*, vol. i. p. 406, that in the arduous campaign of 1805, previous to the battle of Austerlitz, during the whole march of the French army to Vienna, they were exposed to snow and rain, and the rapidity of their progress did not allow the soldiers time to dry their clothes. They were also deprived of such articles as were necessary to protect them against the vicissitudes of the weather, as the baggage had not been brought on, and rations could only be regularly distributed in the large cities: "Yet we had but few sick. Indeed, at our entrance into Vienna, our soldiers seemed to have become more robust."

Sir G. Ballingall states:—

"Disease goes hand in hand with indolence and inactivity, whether of body or of mind; and on the contrary, when the minds of soldiers are agreeably occupied, and their bodies energetically employed, as in the attainment or pursuit of victory, disease is kept in abeyance."

Diseases of Monterey in the autumn of 1846.—They were malarious, intermittents, and remittents, mostly the former in the battalion and in the division general hospital; but at other points, as the "Citadel," to the north, between the road to Marin and that to Monclova, there were remittents and congestive fevers, as I was informed by Assistant-Surgeon De Leon. During the operations around the town, and subsequent to the capitulation on the 24th of September, the weather was variable, and the men were predisposed to these diseases from encamping in the low country in summer, exposure,

and fatigue. The following extract is from my *Notes*.—"September 25. The nights are quite cool; days not hot. 27th. Our sick are increasing in number; some of the wounded are doing well, others are not. October 1. The weather is clear and pleasant; the middle of the day rather warm; towards morning cold. 3d. Quite a cool morning; warm in the middle of the day. Many of the men have severe wounds, but in general they are doing well. 6th. Cold morning; clouds hanging on the mountains; clear before the middle of the day. 7th. Flying clouds and strong easterly wind; hot in the middle of the day; cold at night. 8th. Strong east wind. 9th. Easterly wind; thick flying clouds, and rain about sundown. Warm night. 10th. Cloudy, with occasional sunshine; warm. A number of cases of intermittent to-day. 11th, 12th, 13th, 14th, 15th. The weather pleasant. More or less fever cases daily. 16th. The weather is bitter cold, and at the north the appearance of the clouds would denote snow. Fevers are extremely prevalent; very many are sick; and the effect on the wounded is unfavourable. 17th. Weather as yesterday, cold and unpleasant, and fever continues. 18th, 19th. Weather the same; and fever cases multiply as a matter of course. 20th. Cold, cloudy, and rainy. 21st. Cloudy; warmer than for some days past; and fevers seem to be somewhat abating. 22d. Cloudy; and much warmer than heretofore. Not so much sickness; but there are cases enough to keep us all busy. 31st. Muster day. Rather warm, but the weather is beautiful. From the 1st to the 13th of the month, there were ten companies in all, nine of the battalion and Duncan's Battery; and from the 13th to the end of the month, there were eight companies in all; and the number of sick amounts to an average of 14 to each company, or 21 per cent. of the battalion; and, including Duncan's Battery, to more than 24 per cent. The inhabitants of the town have suffered severely from fevers, as well as our own troops; from the hospital at the Casa Arista to the Plaza de la Capella, Campo Santo, or 'Cemetery,' a distance of half a mile, whole families have been sick with intermittents and remittents." November 1. Fever cases admitted, 14; November 2, 39 cases of fever admitted; and the disease continued, more or less, to the end of the year.

Treatment of Fevers at Monterey.—So long as our quinine held out, there was no difficulty in managing the fevers, but this remedy had to be withdrawn, a limited quantity being essential to the severe cases. Pulv. cinchonæ did very well as long as it lasted, but this gave out, and we then resorted to serpentaria Virginiana and other bitters. When these gave out, we took to sulphate of zinc and myrrh, sometimes with, and sometimes without opium, which answered a good purpose in the intermittents, though slower in its operation than the above-named remedies. I remembered what Dr. Eli Ives, the veteran professor of Yale College, had inculcated in his manuscript lectures in regard to the virtues of sulphate of zinc in intermittent fever:—

"If there is any article which is a specific in intermittent fever, it is this.
* * This is the remedy on which I most rely in intermittents of the ordi-

nary kind.* It very rarely offends the stomach; I give as many as four grains in pill at a dose without producing nausea. It excites the appetite, promotes digestion, and produces vigorous action of the system in general. No debility follows the use of the medicine, even when continued for months. A friend, who was going to establish a settlement on the lakes west of the State of New York, called on me for medicines and directions for treating intermittent fever. I directed him to evacuate the stomach with tartar emetic, and the bowels with calomel, and then give pills of sulphate of zinc, four a day. When he returned, he informed me that he did not fail to cure the disease in four or five days, and he took with him a recipe of the pills, at the request, and for the benefit of those who had taken them."

But the sulphate of zinc gave out, and I was obliged to resort, very unwillingly, to the use of arsenic, though not to the extent recommended by M. Bourdin, "three centigrammes = 0.463 grs., or rather less than half a grain of the white oxyd of arsenic for a dose, generally daily!" Fowler's arsenical solution was mostly used. Fortunately, the opening of our communications with the depôts at Camargo and Matamoros, and the arrival of a supply of quinine and other medicines and stores, rendered it unnecessary to continue the use of a dangerous remedy. Doubtless, arsenic is an efficient remedy in intermittent fever, but the effects, both on the stomach and system, will, it is hoped, prevent it from being frequently resorted to. Subsequent to its employment at Monterey, many of the patients had anasarca swellings of the limbs, face, and eyelids—*cedema arsenicalis*—and general bad health. That a substitute for the sulphate of quinine should be found is of the utmost consequence, but the preparations of arsenic are the worst of all, and are applicable to special cases only. M. Andral considers that arsenic should be placed as next in value to quinine, and before all other remedies for ague. In answer to the question whether it should not be used instead of quinine, on account of the lowness of price, M. Andral says no. First, because it is apt to produce vomiting and other unpleasant effects in some cases; secondly, because it presents increased facilities for poisoning by rendering it possible to refer an effect to the medicine which was the result of another agency. On the contrary, *arsenic should never be employed except where quinine has failed to do good.*

November 13, 1846. Our division marched to Saltillo, which was occupied on the 16th. This town, the most important in Coahuila, is situated near the end of the mountain gorge, about fifty miles from Monterey, lat. 25° 26' 22" N., lon. 101° 1' 45" W., and contains 12,000 or 14,000 inhabitants. According to Wislizenus, Saltillo is 5,240 English feet above the level of the sea, or just above the *tierra templada*; and its elevation above Monterey is variously estimated from 700 to 2,000 feet. It may be 1,000 feet above Monterey; certain it is that the latter is the extreme limit of the orange, and the apple grows abundantly around Saltillo; and after the capitulation quite

* In justice to Dr. Ives, it ought to be stated, that the above extracts were written several years ago, before sulphate of quinine was used so freely as at the present day.

a brisk little trade in apples and oranges was carried on between the two towns.

Saltillo bears no comparison with Monterey in beauty or in the character of the inhabitants. On our march to occupy the town, a Mexican informed us that it was *mucha mala*, containing *muchas putas y ladrones y matadores*, and it was not long before our troops suffered from them.

Venereal Diseases.—There was great difference during the war in their frequency in the different towns of Mexico. Matamoros, Camargo, Monterey, and Vera Cruz were quite free from them; while at Saltillo and in the city of Mexico, on the contrary, they were rife, and of a virulent character. Our battalion did not suffer so severely at Saltillo as some of the infantry regiments, one of which in particular, when we left in January, was much crippled, requiring several wagons for those who were *hors de combat*. My limits will permit but a brief notice of these diseases.

Syphilis at Saltillo was very common and very malignant. So much has been said on the subject in special treatises, that a few remarks in relation to treatment will be amply sufficient. Whatever was found upon the organs after a suspicious connection, whether pustule, excoriation, or inflammation—as M. Ricord says, “whatever its nature might be, and without an exact diagnosis being requisite,” it was canterized. In the treatment of indurated chancres, the lunar caustic was useless and injurious; creosote and nitric acid, employed early, were sufficient. So important was time considered, that the company officers were requested to induce their men to apply to the medical officers without delay the moment a suspicious appearance presented. By this means many suspicious appearances, or chancres, whichever they were, were quickly cured. When more advanced, indurated, and ulcerated, mercurials were considered necessary; and the preparations mostly used by myself were the proto-iodide, and the bichloride of mercury. The first is most fashionable, and is certainly a valuable preparation; but I must confess a partiality for the latter, from having employed it during many years in all climates and seasons, north and south, both in primary and secondary disease, with the best effects. In one of the latest editions of Ellis’s Formulary is the following passage: “As salivation rapidly follows the use of corrosive sublimate, its effect must be watched.” The effect of all mercurials must be “watched,” but the bichloride is far from producing ptyalism “rapidly;” and it induces ptyalism, according to my experience, less rapidly than any other preparation of mercury. Its effects are almost immediate, and in a day or two are manifested by indubitable signs, by the secretions generally, especially of the skin and kidney, but it does not readily bring on salivation. Wood and Bache say, *U. S. Dispensatory*: “It is less apt to salivate than most other mercurials. In minute doses suitably repeated, it may exert its peculiar influence without any obvious alteration of the vital functions, except, perhaps, a slight increase in the frequency of the pulse, and in the secretions from the skin and kidneys.” As a general thing, too much mercury is given instead of too

little. Druitt, *Prin. and Prac. of Surgery*, p. 206, says, that when there is "slight soreness and sponginess of the gums, with a slight increase of the saliva, it should be steadily maintained for four or five weeks, and until the sore has healed and all hardness of the cicatrix has vanished." Given in this manner, the remedy must surely be worse than the disease. The earlier editions of Ricord and Acton give no very definite directions in regard to a mercurial course, but, according to the *Brit. and For. Med.-Chir. Rev.* for July, 1851, "when Mr. Acton lately visited M. Ricord at Paris, and asked him 'How long must mercury be given after the disappearance of induration?' the reply was: 'Six months, at least, may pass before leaving off the preparation,' which ought to be kept up to nearly the same dose which has effected the cure for that time; and he added: 'Even then the patient must not be surprised at seeing the disease return.' Sir B. Brodie says, mercury should never be left off until the hard cicatrix disappears." This is rather severe practice; a patient must be mercurialized to death in the first stage of syphilis, for fear that secondary symptoms may appear; and when they do appear, the combined mercurial disease and syphilis must be treated together! A better rule of practice from the above journal, is, perhaps, "to leave off mercury a very few days after cicatrization of the sore, convinced that a longer course is very uncertain as a preventive of further syphilitic affections, and more likely to injure the general health than the latent existence of the poison, even if it do exist, and that it in no degree assists us in the treatment of any of the secondary symptoms when they do arise." Indeed, it may be doubted if mercury is necessary in all cases "a very few days after cicatrization of the sore;" too much mercury may be given by this rule.

Sloughing Chancres.—These were not uncommon. In December, 1846, I went to Monterey on duty for a few days; on returning to Saltillo, my assistant was urgent for us to visit a young lieutenant of artillery who had a sloughing chancre which threatened the immediate loss of the organ. Argent. nit. had been first used, and subsequently acid. nit. dilut.; we determined to make an immediate and decided application of the pure acid; but if the sloughing continued, after twelve or eighteen hours, the actual cautery was to be employed without hesitation. But the pure acid was sufficient, and the patient recovered in a reasonable time, using tonics and good diet.

Gonorrhœa was more virulent at Saltillo than I have ever seen it, often requiring the lancet and poultices to subdue intense inflammation, and also the free use of opium, camphor, tart. antim., anodyne enemata, &c. Injections were never used in the early stage, for the inflammation was too intense; indeed, I am opposed to them in almost all cases. When the inflammation was in a measure subdued, the powder of cubebs was freely administered, being decidedly preferable to copaiba, though a combination of the two is sometimes necessary in obstinate cases; but the balsam is more irritating to the kidneys and bladder than the cubebs, and has, moreover, so pernicious an influence upon the digestive organs that it is no favourite in my practice.

The powder of cubebs is a warm aromatic, and is much more grateful to the stomach than copaiba. Phimosis was sometimes so severe that a few cases, complicated with syphilis, required an operation.

During our marches in 1846, our men were subject to spasmodic vesical ischuria, caused by sleeping on the ground. As the warm bath could not be employed on an active campaign, decided doses of tinct. opii and spts. eth. nitros. were administered, which rendered the introduction of the catheter easy, in the event of that instrument becoming necessary. Camphor and opium were also beneficial, and also tinct. opii camph.

Abstract of the report of sick and wounded of the artillery battalion, Duncan's battery, and a squadron of dragoons, for the quarter ending the 31st of December, 1846,

Diseases.	October.	November.	December.	Total.
Fevers	206	258	136	600
Diarrhœa	25	18	12	55
Dysentery, acute	25	9	3	37
All others of the digestive system	1	3	4	8
Catarrh	17	18	16	51
All others of the respiratory system	0	2	3	5
Brain and nervous system	0	1	0	1
Urinary and genital organs	2	0	17	19
Rheumatism, acute and chronic	1	1	1	3
Abscesses and ulcers	3	9	2	14
Wounds and injuries	7	17	8	32
All others	7	13	10	30
Total taken sick	294	349	212	855
Remaining at last report . . . . .	.	.	.	30
Aggregate . . . . .	.	.	.	885
Sent to general hospital . . . . .	.	.	.	80
Returned to duty . . . . .	.	.	.	718
Died . . . . .	.	.	.	5
Remaining sick . . . . .	.	.	.	82
				885

Died, in addition, two of the battalion in the general hospital of the division, in my charge, of gunshot wounds. A squadron of dragoons, about 150 men, included in the mean strength from November 21 to the end of the month; cases 47; death, 1, of continued fever; entered on the 20th November, moribund; died on the 21st.

MEAN STRENGTH.

Month.	Officers.	Men.	Total.
October	29	504	533
November	32	617	649
December	26	485	511
Aggregate	87	1606	1693
Average	29	535	564

This brings us to the end of the year 1846.

ART. III.—*The Practical Application of the Microscope to the Diagnosis of Cancer.* By FRANCIS DONALDSON, M. D., Baltimore, Maryland. With three Plates, representing Cancer and other Histological Elements.

THERE is, perhaps, no disease, not even excepting tubercular phthisis, which has carried off its victims to the grave with more unerring certainty than cancer. For centuries, it has been the dread of the human race. Every child understands that it is some loathsome disease, to be heir to which he would deem the greatest of misfortunes. Its distinctive character has rendered its very name significant of malignancy; the ancient leprosy could scarcely have been regarded with more terror. Its known fatality has made it the study of pathologists of all ages, both as regards its nature and its treatment. Sad is the reflection that, even at this advanced stage of medical science, the inability to cure this disease is still one of those opprobria from which the science cannot rid itself. The physician is still often obliged to look on as a bystander, unable to arrest the malady, literally eating into the very vitals of his patient. We need surely, then, make no apology for adding, if it be merely our mite, to the investigation of this malignant disease.

We have used the microscope in our researches, not merely to satisfy our curiosity, or because the study was interesting in itself, but that we might be able to deduce therefrom its practical application to the diagnosis, and thus, indirectly, to the treatment also. For although, as Dr. Bartlett* remarks, our therapeutics are not deducible from our pathology; yet, it is true, as he proceeds to show, that diagnosis must be in advance of therapeutics.

Some men are disposed to speak of investigations into minute, normal, or pathological anatomy, as if they had no bearing upon the practice of physic; and would draw invidious lines of distinction between the science and the art of medicine, as if a knowledge of the two was incompatible. They forget, or intentionally overlook the fact, that the appropriateness of our treatment must be in proportion to the accuracy of our diagnosis, which, of course, is greater or less, according to the knowledge possessed of pathology. It is true that, after all, the actions of medicines cannot be arrived at from *a priori* reasoning, but by actual experiment, yet pathology must first give the data upon which to found our experimentation.

In answer to the sneer of those who ask whether or not the treatment of disease is more successful, nowadays, based upon scientific principles than it formerly was—whether or not more lives are saved, we do not hesitate to reply, with Dr. Simon, in his recent work on Pathology,† in the affirmative. The negative results alone have, beyond a doubt, saved many a life. Who

* Essay on the Philosophy of Medical Science, by Elisha Bartlett, M. D. 1844.

† Lectures on General Pathology, London, 1851, and Philadelphia, 1852.

can question that the old system of excessive drugging and exhausting blood-lettings, has hurried many a victim to his grave? In this way, alone, the progress recently made in pathology has done incalculable good. Take, for example, Ricord's now well-demonstrated non-identity of syphilis and gonorrhoea. What a bearing it has had upon treatment in preventing the excessive use of mercury! The importance of a knowledge of pathological anatomy and of pathology can be called into question only by those who are ignorant of the true aim of their profession.

It were well to bear in mind that no fact in science is worthless; if we do not now see its practical bearing, it will, sooner or later, be brought forth. M. Chevreul spent a quarter of a century in the study of fatty bodies, one result of which, alone—the use of stearine in the manufacture of candles—was worth all his labour.

A few words to those who object to the employment of the microscope in the investigation of disease. It has been invariably the case that, when any additional mode of exploring disease has been invented, or any discovery made in medical science, many men, who, from their high position, it would have been supposed would cheerfully have supported it, have objected until they were forced to admit it, although, perhaps, they could not avail themselves of it. Harvey, Jenner, and Laennec had to encounter the opposition of those upon whose aid they might have counted. Even to this day, when, if there is a department of medicine which is well established, it is auscultation, there are those found who cavil at it and question its accuracy, although they might as well deny any of the plainest phenomena of natural philosophy. The microscope has, unfortunately, been considered to be a mysterious instrument only to be managed, or even understood, by men of imaginative minds, who could fancy they saw in the field of the instrument any and all conceivable shapes. We are thankful that that erroneous impression is fast fading away, although, in the United States, the practical use of the instrument is not generally understood in its application to medical science. Indeed, the manufacturers have been to blame in no slight degree for this, owing to their unnecessary complication of the machinery. The great number of useless screws and addenda have frightened the profession, and made them believe that, to understand its use, it was necessary to make it one's only study. Then, again, their arbitrary mode of estimating their magnifying powers by the camera lucida, has caused them greatly to exaggerate the power of their lenses. Microscopy, as it is improperly called, some have tried to erect into a new and separate science, when, in fact, it is merely a modification of our ordinary modes of observing—the manner of observing is the only new thing about it. In the examination of those bodies which can be seen well from their size by the natural eye, we do not call in its aid; for those, on the contrary, which are too small to be thus examined, we employ a physical machine, which, by the concentration, &c., of the rays of light proceeding from the object, bring it within the focus of vision. It is nothing

more nor less than an improvement upon our sense of sight. "In this, as in all other improvements in medicine," remarks M. Ch. Robin,* "the first mode of objecting, is to deny the truth of the results; this, overcome by proof, they say that, after all, it is unnecessary, for the existing modes of investigation are sufficient."

But why is there such unwillingness to admit the progress of science? Is it not because the facts revealed, overturn, or more or less modify existing theories, upon which are based all their practical deductions? Was not such the case in the time of the discovery of the circulation of the blood?

If those who think there is no reliance to be placed on appearances in the field of the microscope would take any crystal, such as that of the beautiful octohedra of the oxalate of lime visible already to the naked eye, and magnify it by degrees, they would see that, no matter what the power of the glass used, it possessed the same number of sides, angles, &c.; the only difference being that the minute details, not visible before, would be brought out. They ought to remember that no matter how high the magnifying power of a lens, it cannot render visible things which do not really exist—it cannot create. The only question to be settled is, whether or not a cell or corpuscle of a certain form and size is constantly seen in such and such a normal tissue or morbid growth, and not whether its appearance is the work of the imagination or of some mysterious creating power in the instrument itself. The constancy of the occurrence of the cell, &c., is what gives us a right to classify it as an *element*. We have heard the objection urged that in a few years all we now consider as established will be overturned; new investigations, say they, will do away with existing views; as manufacturers improve in their lenses higher powers will reveal new points. A strange objection this, which would stop all progress in science! Are we to investigate nothing in science because our descendants may improve on our knowledge? But is it correct? Are there no points settled in microscopy? Do higher powers destroy what the lower have shown? Has the highest magnifying lens disproved the constant presence of peculiar corpuscles in the blood? Is there anything clearer than the appearance of the morbid product known as *pus*? Could there be a greater triumph for the truthfulness of the microscope than the now universally admitted fact of spermatozoa in the male semen?—not many years back, and the idea was ridiculed! Have improved glasses done away with M. Donne's researches* in regard to them and to the colostrum corpuscle? Is not the presence of pavement epithelial scales in some parts of the body, and the existence of cylindrical and ciliated ones in others, universally acknowledged? Would not men doubt, if they could, the beautiful phenomena of ciliary motion, such as can be easily exhibited in the oyster, &c., or as can be shown on certain surfaces of the body? We cannot forbear

* Du Microscope et des Injections, Paris, 1849.

† See Cours de Microscopie. Paris, 1844.

mentioning some other points in histology as established by the use of the microscope, such as the muscular fibres of animal and of organic life, the elements of white fibrous tissue, yellow elastic, &c., the fungous vegetable growths in true porrigio favosus, or in herpes tonsurans.* "It is true, the interpretation of these histological elements," observes M. Broca,† "is much discussed." Some think the spermatozoa are animalcules; others, again (the now prevalent, and we believe, the correct view), hold that the motion exhibited is merely ciliary. The exact relation between the Haversian canals of bones and the canaliculi may be disputed, as may the question whether or not white blood-corpuscles are changed from lymph. But the form of these elements and their invariable appropriate presence is not questioned. It is not true, then, that a stronger lens destroys what a feebler has revealed; it must show the same element, only more in detail.

The difference of opinion among microscopic observers, with regard to certain points is no argument against the use of the instrument, any more than the differences among anatomists in regard to coarser anatomy is to be urged against the employment of dissections. The microscope ought no more to be condemned for the errors of the microscopist than the scalpel for those of the anatomist, or chemistry for discrepant analyses. The use of the microscope has already shown the falsity of more than one theory, and abolished more than one hypothesis. "As at the epoch of Morgagni," says M. Broca, "pathological anatomy, though in its infancy, came in contact with the prevailing humoral theory and the empirical doctrines. It was not to be wondered at, that there should have been then, as there ever will be, a violent contest between routine and tradition on the one side, and the progress of science on the other. But here, as in the time of Harvey, when the same contest was carried on with no little ardour, the innovations of science must finally prevail, although at each step it must fight its way."

Our space will not allow of our giving more of the points in histology and in pathology elucidated by the microscope. We can do no more than allude to the settling the disputed nature of the dartos, showing it composed of a peculiar structure of its own; to M. Gosselin's demonstration,‡ that there is properly speaking no medullary membrane, and the confirmation of it by M. Robin;§ to the turning of Bouillaud's views in regard to arteritis, by proving that neither the internal coat, nor, indeed, any coat but the adventitious or outermost of the arteries is vascular, consequently that there can be no such disease as arteritis, so that the coloration taken as inflammatory is merely from imbibition. In the same way, calcareous deposits in the arteries, &c., were erroneously considered osseous in their nature.

* See *Des Végétaux qui croissent sur l'homme, &c.* Par Ch. Robin. Paris, 1847.

† *Quelques Propositions sur les Tumeurs dites Cancéreuses*, Thèse. Paris, 1849.

‡ *Archives de Médecine*. 1847.

§ *Mémoires de la Société de Biologie*. 1849.

We need scarcely speak of what the microscope has already accomplished in renal and urinary diseases. In that branch of medicine, a physician who is not familiar with the use of the microscope is cut off in his diagnosis from an invaluable aid, as necessary, in fact, for the proper understanding of it, as a knowledge of auscultation is for diseases of the heart and lungs. We need but refer the reader to the manuals of Golding Bird, Griffith, and Frick.

The value of the microscope in forensic medicine should be acknowledged by all, even if its only service had been in detecting spermatozoa and blood-discs, the latter of which, according to Hassall,* can be distinguished in stains six months old.

Thus we see that the microscope has already done good service to the profession, and we may look forward to the not distant day, when its employment, as a means of diagnosis, will be general.†

Certain it is, that we need every possible aid we can get in the difficult work of diagnosis; for how often do we see the most skilful acknowledging themselves baffled. If it was only in very rare cases that the microscope could furnish us with some insight into disease, it would repay the practical physician for the time and labour consumed in pursuing the study. But the fact is, that in numerous cases in every-day practice, its application in medicine renders clear obscure points in disease. It was truly said by Andral, that to it and to animal chemistry must we now look for progress in medical science.

The following deductions in regard to *cancer* have been arrived at from many observations collected during the past three years; eighteen months of which time were passed in Paris, where the material offered for examination was very great. For many of the specimens we are indebted to our friends.

Of course, we have availed ourselves of the results of others; indeed, we have examined all that has been written on the subject within our reach. The existing knowledge of no disease shows so well the gradual progress that has been made in medical science. It may not be uninteresting to trace briefly the doctrines held at different periods as to the nature of this disease. The term *cancer* was applied by the Romans to the morbid condition termed *gangrene* by the Greeks, and *carcinoma* had the signification now generally attached to cancer, being first used to designate certain ulcerations of the mammary gland. The name cancer was supposed to have been given on account of a fanciful resemblance to the body and claws of the crab, remarked in the tumour with its surrounding veins dilated from the obstruction to the return circulation. It may have been, as others conjecture, that the ancients thought there actually existed in the parts affected an animal which devoured the tissues. However, the name, whether originally so intended or not, is

* Microscopic Anatomy of the Human Body. London, 1849.

† It is with peculiar pleasure we welcome Dr. Bennett's new work *Clinical Lectures*, in which the practical use of the microscope is shown in daily practice—a new era in medical literature and hospital instruction.

symbolical of the loathsome and destructive character of the disease. As far back as Hippocrates, who considered *black bile* as its cause, cancer was divided into the ulcerated and non-ulcerated; the former taking the name of cancer proper, and the latter that of scirrhus. After that, the term soft cancer was applied to the morbid product now known as encephaloid. This has been resisted by Abernethy and others, but earnestly contended for by Bayle, who included with them all intractable cutaneous ulcerations.

Ambrose Paré, the father of French surgery, gave his division of cancer, which he thought had its origin in the different kinds of melancholy.

In looking over the catalogue of the various doctrines taught at different periods in regard to this disease, we have been forcibly struck by the indefinite and confused views held on many questions which have been so much elucidated by Corvisart, Laennec, and Bayle in their pathological investigations. Laennec described the physical characters of cancer, and went profoundly into its origin and tendency. His successors, MM. Andral, Cruveilhier, and Velpeau followed in the same train. In England, we owe much to Sir Astley Cooper, for his division of mammary tumours into benign and malignant or cancerous. According to Dr. Walshe,* Dr. Young ought to have the credit of having first classified scirrhus and encephaloid as species of the genus cancer or carcinoma. Dr. Walshe claims for himself, what in justice should belong to Laennec, the having placed *colloid* in juxtaposition with scirrhus and encephaloid as another species.

At this stage of the history of this disease, we cannot refrain from calling attention to the confusion which still reigns in the doctrines taught, which are those held by the majority of modern surgeons, and generally lectured upon in our medical schools. They divide cancer, as did Laennec, into three varieties; but what points do even such authorities as Berard,† Samuel Cooper,‡ or Dr. Warren give us, by which we can distinguish the class of morbid growths, to which they give the indefinite name of *malignant*, without stating in which of the various senses they apply the expression? It is true that close observers noticed that certain exterior characters generally accompanied those tumours which proved fatal. How are we to judge of a tumour in the mammary gland, whether or not it be fibrous, scirrhus, or simple hypertrophy of the proper tissue of the organ itself, either during life or after death? What rules are laid down, even by the most observant and the most skilful, to distinguish what they designate malignant growths from what they call *simple sarcoma*? And again, what definite meaning is attached to this term? If it attacks the bone, it is called osteo-sarcoma; then, again, we have mammary sarcoma, medullary sarcoma, &c., some of which are admitted to be as destructive as cancer, from which many do not separate them.

* The Nature and Treatment of Cancer. London, 1846.

† Dictionnaire de Médecine, en xxx. vols., vol. xv.

‡ Surgical Dictionary.

The lancinating pain, so much relied upon by some, even Abernethy acknowledged could be caused by non-cancerous tumours. We used to be told that, if there was a grating sensation perceived on scraping the cut surface of a tumour, that it was cancerous in its nature; but who has not seen simple fibrous tumours, which have existed for years within the walls of the uterus, in which this sign was perfectly evident?

The term *malignant* must be acknowledged by all to be inappropriate to any one disease, whether applied to designate a sore, which, by ulceration, spreads and destroys life, or to a tumour which has the tendency to recur after extirpation, or as implying a constitutional taint. What more malignant in the sense of destroying life by ulceration, than phthisis; by sloughing, than hospital gangrene; by softening, than ramollissement cerebri? What more destructive than constitutional syphilis? Simple thickening of the pylorus, or any acute ulceration of stomach or intestine could, with perfect propriety, receive the name of malignant. "The only sense in which this favourite term can be applied," justly observes Mr. Bennett,* "exclusively to cancer, is in regard to its returning again;" but, as we shall show, further on, it is true, even in that respect, only in a qualified sense. It would be well if we could, as Dr. Walshe proposed, relinquish altogether the term malignant, as applicable only to cancer; indeed, it would be better still, if the name itself of cancer could be expunged, and some more significant word used. But it is next to impossible to eradicate a word so long in general use, and we must mend the matter by endeavouring to give it a definite and clear meaning.

We do not wish to be understood to say that correct diagnoses cannot be sometimes arrived at by surgeons who judge merely from the coarser physical characters, so to speak, particularly when the disease is located in some exterior organ, and has progressed so far as to ulcerate deeply or to break down the strength of the patient. But we unhesitatingly say that often there is great confusion and doubt even among distinguished surgeons, at the most important period of the disease. We, ourselves, have known of several instances where the great Velpeau, than whom no one has ranked higher as a surgical pathologist, has extirpated as scirrhus of the breast what proved to be nothing more than simple hypertrophy of the proper tissue of the gland. We mean to express our conviction that there can be no just and satisfactory classification of morbid growths not founded upon their intimate microscopic structure; that, if we rely, as heretofore, merely upon their superficial or coarser physical characters, such as volume, consistence, colour, &c., we must often class together things which are, in fact, very dissimilar. This department of surgical pathology without the microscope is just where the diagnosis of diseases of the heart and lungs was, before the discovery of Laennec; or, as obscure and unsatisfactory as the doctrines of essential fevers were before they were distinguished by their anatomical lesions, as when names were given to them

* Cancerous and Cancroid Growths, by J. H. Bennett, Edinburgh, 1849.

according to the grade of febrile reaction, and when, of course, they were often confounded with inflammations.

"We should not be accused," justly observes M. Broca, "of presumption in thus speaking of the errors of distinguished surgeons, our masters. Their ability, their genius, are not denied. We cannot but feel grateful to them, and reverence them. We impute the errors they committed, and the incompleteness of their doctrines, not to them, but to the insufficiency of their means of investigation." The study of auscultation requires no particular talent, yet who can doubt but that any one, who is familiar with it, could diagnose with more accuracy many diseases than could a Sydenham?

The labours of Baillie, Hope, and Laennec, and, in our own times, Cruveilhier, Rokitsansky, Barth, Velpeau, and others, have obtained invaluable results from the older methods of research; they had, indeed, apparently made as much advance as could be made in this way. "But," remarks Dr. Lyons,* "the laws of morbid association and the statistics of diseases were yet to be deduced. The microscopist and the chemist have started a new era in pathology, and cleared much which was before obscure."

The use of the microscope had been taken advantage of in many branches of natural science. Botany, Zoology, and Mineralogy have all been greatly elucidated by its employment. Such works as that of Ehrenberg's are seldom met with in any science. It was not to be supposed that the human body would remain unlooked into. As far back as 1722, Leuwenhoeck applied the microscope to find out the intimate structure of our different tissues; but it appears to have been a mere abortive effort, for the science remained nearly dormant for a whole century, when Edwards's, and afterwards Dutrochet's investigations were published. It was not, however, until about the year 1835 that medical science received any impulse in regard to microscopic researches into the minute constitution of cancer. Several prominent men on the continent of Europe commenced their investigations about the same time, but it is principally to the distinguished physiologist, Müller,† that we are indebted for the first microscopic investigation of morbid growths. M. Schwann's theory of cell-formation gave a powerful impetus to these researches. Müller certainly accomplished much in his treatise, for he was the first to attempt to arrange and classify tumours according to their minute composition. He separated enchondromatous tumours, and what he called albuminous sarcoma from cancer. But his work was far from being complete; it was founded, not upon cases observed clinically by himself, but upon specimens handed to him. He did not find a constant element in cancer, because he considered as unquestionably cancer, what the surgeons had extirpated as such. He observed the tumours, but not the patients. Had he compared what he saw anatomically and microscopically with observations at the bedside, there would

* An Apology for the Microscope, by R. D. Lyons, M. D., Dublin, 1851.

† Müller on the Nature, &c., of Cancer, translated by West, London, 1840.

have been more reliance to be placed upon his results. His great merit was in leading the way. It was reserved to M. Lebert, in publishing, in 1845, after unequalled industry and research, the results of his microscopic observations, to define clearly cancer by the microscope.* The first years of his manhood were devoted to zoology and botany, as *Les Annales des Sciences Naturelles* bear good evidence in his many valuable contributions. A good preparation this for his medical studies. He had there learned to observe and to rely upon facts carefully ascertained. He was struck in commencing his medical studies with the absence of that mathematical precision he had always been accustomed to; he found the profession governed more by a science of tradition than by one of observation. He naturally, at once, became a disciple of Louis, whose name will ever be associated with the true starting-point in medical science, he being the first to insist upon the application of the Baconian principles of philosophy to the science of medicine. The adoption of these principles, in all departments of medicine, he saw, as all must, is the only sure way of arriving at anything like an approximation to truth. Based upon such principles, his works, like those of the founder of this era in medicine, must remain forever. His researches on Inflammation; his discovery of the Tubercular Corpuscle; his division of Tumours with the Fibro-Plastic Element; and his classification of Cancerous Growths; his investigations on the Formation of Callus, must ever be valuable. His more recent works (monographs), on Scrofula,† Cancer,‡ and Hypertrophy of the Mammary Gland,§ are justly considered three of the most remarkable and complete treatises ever published. By him it was, that cancer was defined with precision and clearness, and we shall have frequent occasion to quote his authority. It was, in fact, to test, as far as we could, the accuracy of his statements that we have carried on our comparatively limited investigations.

In his recent work,|| he says that years of clinical observation have confirmed his deductions in regard to the cancer element.

Dr. Walshe, in his treatise, has devoted but little space to the consideration of cancer elements.

We may be asked why there is such diversity of opinion existing among such observers as Müller, Walshe, Vogel, Bennett, and Lebert? Why is it that Lebert has been able to draw out with so much more clearness than the others these particular elements? Why so much confusion with others when he has no difficulty? Our answer is to us very plain: the lenses he employs are finer and more powerful. We shall hereafter allude more particularly to the inter-

* *Physiologie Pathologique*, Paris, 1845.

† *Traité Pratique des Maladies Scrofuleuses et Tuberculeuses*, par H. Lebert, 1849.

‡ *Traité Pratique des Maladies Cancéreuses*, &c., par H. Lebert, 1851.

§ *De l'Hypertrophie Partielle de la Glande Mammaire*, 1850.

|| *Traité Pratique des Maladies Cancéreuses*, &c. Paris, 1851.

esting work by Mr. Bennett upon this subject. In regard to Vogel's plates,* we doubt if any one can get from them any clear idea of any cell or minute element, with the exception of things which require but a very feeble magnifying power to distinguish them, such as crystals of cholesterine, pus globules, and compound granular corpuscles. He gives as tubercular corpuscles what resemble more than anything else free epithelial nuclei, such as are found in the minute bronchii. His mistakes, and the confusion in which he has involved these matters, are all owing to the feeble lenses employed. According to his own estimate, he saw these corpuscles of tubercle with a power of 220 diameters, when it requires at least 450 diameters to see them at all. We, in examining tubercle, use a lens of Natchet's (No. 7),† of a magnifying power of 833 diameters, according to the most accurate modes of measurement: with this we have no difficulty in describing the corpuscles peculiar to tubercle (see Plate III. Fig. 3), the most constant and unvarying of all. With a triple phosphate crystal, or one of uric acid, which can be well seen with a feeble lens, it is unnecessary to employ higher powers; but with many of the minute elements of the different tissues and products, it is necessary, in order to see them distinctly, to use our highest glasses. With a strong lens there is no danger of confounding pus globules with white blood-corpuscles, or of finding any peculiar globules in mucus. We often hear it said, that for all practical purposes a small microscope with a lens of two or three hundred diameters is all-sufficient. This is a mistake. A microscope, to be applied constantly by a physician, ought to have high as well as low powers, otherwise he can only partially observe. Moreover, these small instruments are without micrometers to measure the diameters of the objects, a very important element of diagnosis; not to mention the absence of a polarizing apparatus, &c. The absurdity of saying, as some do, that there is no confidence to be placed in the accuracy of the higher lenses, is as apparent as the assertion of others who believe nothing but what they can see with their naked, unaided vision. The rays of light passing through lenses placed one above another cannot show what does not exist; if the glasses are achromatic, and have a clear definition, there can be no obscurity. We cannot but think that if Mr. Bennett had used a higher power than 250 diameters, his evidence in favour of the peculiarity of cancer elements would have been much stronger. It is, however, saying a great deal when he admits that the microscope is as useful to the surgeon in the diagnosis of cancer as the stethoscope is to the physician. It would be an exaggeration to say of any rational system, or of any physical sign, that it was a certain, infallible indication of a particular lesion. The observer would, indeed, be narrow-minded and contracted who would rely in forming his diagnosis only upon one of the points attainable, as to the nature of the disease,

* The Pathological Anatomy of the Human Body, by Julius Vogel. Translated by Dr. Day. American edition, 1847.

† With Natchet's *oblique prism*, his short-eye pieces can be used with the high objective glasses, giving a clear definition.

instead of grouping them altogether, giving each its due weight. Does any auscultator rely upon physical signs exclusively, although there are certain of them, the indications of which, even by themselves, are almost pathognomonic? In answer to the question, whether or not we believe there is a peculiar intimate structure, under the microscope, of true cancer, by which it can be distinguished from all other tissue, normal or pathological, we do not hesitate to reply in the affirmative—in the form of clear and well-defined elements.

We do not pretend to say that there may not be shown, in the field of the instrument, a cell about which there could be doubt; nor that, under all circumstances, could a microscopic preparation be pronounced cancer or not. There could not always be such certainty of even anything which is as well marked as striated muscular fibre. But this does not lessen the reliability of our assertion that cancer has its constant element. We believe that, from careful microscopic examination of a piece of fresh tumour, for decomposition or alcohol changes it very quickly, its cancerous or non-cancerous nature can be asserted with confidence. In fine, we hold that the employment of the microscope is more accurate in finding out the structure of cancer than auscultation in defining the exact lesions of the heart and lungs! This we hope to be able to show to the mind of the reader as clearly as we ourselves are convinced of it, by dwelling particularly upon the points of differential diagnosis. At best, auscultatory sounds alone are merely signs of the physical not of the pathological condition. During the past session, we have had several opportunities of exhibiting, to the satisfaction of a class of students, the marked difference between cancer and other elements. The few cells with which Mr. Bennett thinks cancer can be sometimes confounded we will compare side by side, in order that the reader may observe their marked dissimilarity.

We admit that we have examined morbid specimens extirpated as cancer, which did not contain the characteristic appearance, but which were composed generally of either epithelial or fibro-plastic cells. These classes of tumours, Lebert appropriately calls *cancroid*, from their resemblance to true cancer. Mr. Bennett, M. Lebert complains, has extended too far the use of this term, by applying it to nearly all morbid growths, such as cartilaginous, fibrous, fatty *cancroid* tumours. Has Lebert proved* nothing in regard to the uncertain diagnosis of surgeons, as to the nature of tumours, by showing that Velpeau, Blandin, Malgaigne, and others of the highest reputation, have extirpated as schirrus of the mammary gland what in fact was nothing more than simple hypertrophy of the gland itself?

But, after all, it is objected by some that the microscope can be of no service in the living subject, for it is after death that you discover what caused it, or it is only after an operation you detect the nature of the disease. Even were this true, it would not destroy the propriety of its use as a means of

* L'Hypertrophie Partielle de la Glande Mammaire, Paris, 1850.

diagnosis, for the discovery of *post-mortem* lesions assuredly throw light upon the symptoms manifesting and accompanying them during life. It would be considered absurd to say that the lesion of thickening and ulceration of Peyer's patches is of no assistance in the diagnosis of typhoid fever, because it can actually be seen only after death. The bearing upon the prognosis is not less apparent. But the fact is that, in the case before us, it is possible sometimes to find out the exact nature of the disease before the knife has been used or death supervened. M. Lebert gives several instances where, by the use of his exploring needle, he was enabled during life to withdraw some of the elements of cancerous tumours, and thus diagnose them. Within the last year, we ourselves have been able to diagnose cancer on the living subject, in six instances, by nipping off little projecting points of the ulcerated surfaces. In one case, at the request of Professor N. R. Smith, of a patient at the Baltimore Infirmary, when there was extensive disease, with induration and ulceration of a doubtful character, of the penis; in another, by the kindness of my friend, Dr. Van Bibber, in a patient of his, suffering with a tumour accompanied with deep-seated ulceration of the posterior fauces; in a third, a patient of Dr. Maris's, there was a large encephaloid tumour of the neck; in two cases of disease of the neck of the uterus; and in another ulcerated penis. In all, the microscope revealed unmistakable evidences of cancer.

There is no evading the plain fact that it is almost impossible to give even an approximate definition of cancer as it is generally understood; for it is not a special disease, but a group of affections having in common certain physical characters. It was necessary, in order to give a clear signification to the word, to separate the various morbid growths classed together under the name of cancer. This M. Lebert has been able to do by the aid of the microscope, into three distinct varieties, each having its peculiar characteristic histological element:—

1. *Cancerous tumours*, properly so called, the only ones which should hereafter be so designated, having the cancerous element without analogy in the economy.

2. *Fibro-plastic tumours*, with its peculiar microscopic element, found in certain parts, also, of the healthy structure.

3. *Epithelial tumours*, characterized by the epithelial element, the same as that found as a normal constituent of the epithelium and epidermis.

To render his classification of the various morbid products clearer, M. Lebert draws the important distinction between those elements found normally in the body, to which he gives the name of *homomorphous*; and those not so met with, but as invariably the product of disease or *heteromorphous*. Under this last head he places *cancer, tubercle, pus, &c.*; under the former, *fibres, muscular tissue, white fibrous tissue, fibro-plastic, epithelial elements, &c.* Homomorphous growths can be the product of disease as well as the others.

Before speaking of the microscopic constitution or the *elements* of cancer, let us pass briefly in review the characters of the *tissue of cancer* which is

ordinarily divided into three varieties, *scirrhus*, or hard, stone cancer; *encephaloid*, or soft cancer; and *colloid*, or gum cancer. The first is firm and hard, owing to the amount of fibrous tissue; it is less vascular than the others. The encephaloid resembles the tissue of the brain, and is more or less firm according to whether it is at the commencement stage or further advanced. It is the most vascular kind, and becomes melanotic more readily than either of the others. When it becomes exceedingly vascular, it receives the name of *fungus hæmatodes*. The third, the gelatinous form, has the cancer element mixed with the common uniting tissue; the coloration varies according to the proportion of elements or tissue present. If the former predominate, it has a yellowish tinge; if the latter, the tumour has a transparent aspect. There is a species of tumour which is colloid, but not cancerous, containing fibro-plastic elements combined with cellular tissue. The cases of cancer where there is extravasation of blood, might be designated as another form. To a variety, where the tissue is of a pale, dull yellow, resembling tubercular structure, M. Lebert has given the name of *phymatoïde*. Some writers speak of soft cancer as a degeneration of the hard, but this manifestly is an error; it is, in fact, the more frequently met with even in the incipient deposit. Moreover, all these forms may be seen in the same specimen.

It is improper to attempt to divide cancer into so many species, as they all have the same common pathology. The variety of aspect, consistence, volume, coloration, and vascularity, is caused merely by the amount of fibrous element, of fat, or of gelatinous fluid present; all of which are purely accidental, and in no way essential to constitute the growth. The density, softness, &c., may also vary according to the organ involved; the breast and the pylorus take generally the form of *scirrhus*; whereas the bladder, the kidneys, &c., are more likely to be affected with encephaloid. Compare the physical characters of cancer with those of the simple tissues, such as the muscular, areolar, cartilaginous, osseous, &c., or with those of the compound, as the glandular, the synovial, the mucous, &c., and the difference will be very apparent. Its greater or less firmness, its homogeneous fibrous aspect with its lactescent infiltrated juice are very characteristic. The presence of this peculiar fluid is of itself a point of differential diagnosis of great value; the microscope always detecting in it, when found, the presence of cancer cells, &c. No matter what organ is the seat of the disease, this fluid can generally be scraped from the cut surface, or squeezed out by gentle pressure. It is particularly abundant in encephaloid, and frequently oozes out in drops having a white cloudy appearance of the consistence of cream, and very much of its colour, being slightly tinged with yellow. It may sometimes, on superficial inspection, be confounded with light-coloured pus, which has, however, with the yellow, a slightly greenish tinge. If, from the conditions of its formation, there can be any doubt, an appeal to the microscope will at once settle it by giving us the characteristic pus globule. (See Plate II. Figs. 5 and 6.)

The cancer juice forms readily an emulsion with water, and in this differs

from tubercular matter and from that pressed from sebaceous tumours. The colour of this juice, is of course modified by the mixture of other fluids with it; thus, when the vascularity is great, it is often reddish; when from a deposit of dark pigment, we have what is called melanotic cancer, it becomes of a dark brown. When mixed with much fat, it is more consistent; in colloid, it is thicker and sometimes grumous.

We may be asked, what is cancer? If it is meant what is the cause producing the disease so called, we are forced to acknowledge our ignorance; there is a point in regard to this and many other affections beyond which science has not yet fathomed. We know that the disease is peculiar in its nature, in its progress, and in its results; but it is beyond the ken of man to divine what produces the predisposition to its development. To define cancer as a tissue produced by disease is not so difficult. Its fundamental character is the substitution of a new tissue formed of heteromorphous elements for the normal structures formed of homomorphous elements, causing the latter to disappear as it progresses. In the first instance, owing to a peculiar, profound, and inaccessible predisposition, a lymphatic gland, the skin, the bones, or some other part or organ of the body becomes the seat of a local manifestation of disease by the deposit of certain elements foreign to the healthy state. As the malady advances other organs and tissues become involved; and, finally, the whole economy becomes affected, and secondary deposits occur in parts far removed from the primary point of disease.

So thoroughly is the whole system contaminated by the poison, that if the morbid growths be removed, the disease almost inevitably returns; and, finally, produces death. The extirpation was no cure, for the same constitutional cause which originated the mischief, continues to act, and, sooner or later, the reproduction of the evil either in the part first affected or elsewhere will show itself. We do not speak of the certain return of cancer without having the highest authority for our statement. The statistical results given by Dr. Walshe are very conclusive on this point. M. Lebert says, that out of 447 cases observed by him, in and out of hospitals, in which he recognized the microscopic element of cancer, not one case, which could be watched, escaped without a return after extirpation; rarely did even two years elapse before there was another deposit. M. Broca, who, while *interne* under Blandin at *Hôtel Dieu*, had the opportunity of observing a large number of cases, confirms Lebert's statement; in his own expressive words, "*le véritable cancer ne pardonne jamais.*"*

Sometimes, even when the local mischief is not of itself sufficient to cause death, its deleterious effects upon the constitution prove fatal; in fact, occasionally after operations, the body succumbs from the effects of the poison before there is any manifest reproduction of the disease. This unerring fatality cannot fortunately be ascribed to any other of the accidental products

* Quelques Propositions sur les Tumeurs dites Cancéreuses. Paris, 1849.

man is heir to. Cancroid epidermic, or rather epithelial growths, for they are found both externally and internally, can destroy life, and may return after extirpation; but with them the mischief is local, being caused by an excessive production of a normal element; and, consequently, their reappearance is local—at the point where the first existed, but never in parts far removed. Exactly as we sometimes see a return of a common lipomatous tumour *in situ* from all of the original not having been taken out. When death occurs from epithelial tumours, it is from extensive local, not constitutional mischief. They differ anatomically and microscopically from cancer in being in the first instance homomorphous without any deposit of cancerous matter. Epithelial tumours must originate from surfaces covered by epithelium—their growth is slower than that of true cancer. Many of the pretended cases of cutaneous cancer are epithelial, as were doubtless many of Lisfranc's uterine cancers, in which he met with such success. Local injuries sometimes produce them. The mouth, the lips, and the neck of the uterus are their favourite seats.

Cancer is far more malignant than tubercle, which is also a heteromorphous substance, and which proves fatal, not so much from the poisonous effect of the tubercles themselves upon the constitution, as from the abundance of the excretion with the suppuration and ulceration which interferes with the proper action of vital organs. Microscopically, they differ very widely (see Plate III. Fig. 3). Syphilis and glanders (*La Morve*), which, since M. Rayer's researches has elicited so much attention abroad, resemble cancer in one point, that the constitution becomes deteriorated, but they differ in proceeding from without, and not, as in the other, in consequence of a constitutional taint; moreover, there is not with them a particular tissue formed as a result of their contamination.

M. Lebert dwells upon cancer being the substitution of an abnormal element for those which already exist in the body. In proportion as this new tissue is developed, it becomes vascular; nutrition goes on, and the histological healthy structures are compressed, become atrophied, and, finally, disappear. The popular belief of the possible transformation of bone, muscle, &c., into cancer, is totally incorrect. Such is, apparently, the case; but, in fact, the blastema of cancer is thrown out, and the cell and nuclei are formed in the primitive structure; the original elements, being gradually absorbed, give place to them.

We have now arrived at what is, to us, the most interesting point in regard to the disease under consideration, its peculiar element, as seen through the microscope. Taken merely as a tissue with its coarser physical characters, we must all acknowledge it is sometimes difficult even for the most experienced to diagnose it. The question upon which we have already expressed our firm conviction, as to whether or not there are peculiar bodies only found in cancer—when carefully examined, instrument in hand—is one of the greatest importance, both practically and for science. The objections urged,

and the doubts expressed by many who are not familiar with microscopic modes of investigation, are, of course, not worthy of notice. We will, presently, consider Mr. Bennett's views, at which we could not but be surprised, as we had been struck, during a recent sojourn in Paris, with the remarkable unity of opinion there, on this point, among men who now occupy the first rank in scientific matters connected with medicine, such as Rayer, Lebert, Ch. Robin, Claude Bernard, Follin, Broca, and others, members of the "*Société de Biologie*," and of the "*Société Anatomique*." We have repeatedly known—as have others who have enjoyed the privilege of attending the meetings of these societies, or of following the *cours* of some of the members—of the same morbid specimen being taken to them to be examined separately, and all to give the same opinion of them.

Some have been rendered incredulous as to the accuracy of the microscope by hearing Velpeau, at his clinique, question it; but, although he has been considered the first surgical pathologist of his day, yet his opinion, in regard to what he has himself never investigated, can scarcely be quoted as high authority. Would that such men would show the same magnanimity as did Louis in regard to the presence of a tubercular corpuscle. He would himself give no opinion, not being familiar with the instrument, but sought that of one whom he knew was, M. Lebert, from whom he gives* a note on the subject.

Some are disappointed on being told that the cancer element is not always of a uniform size, or even of a certain fixed shape; but they certainly do not doubt the existence of epithelial cells because their shape, &c., is different on different surfaces. We will presently show that the great variety of form in the cancer element is a striking peculiarity characteristic of the disease. Notwithstanding their variable form, they all have points of unmistakable resemblance with each other. Out of a hundred individuals of a particular race, there may not be two with precisely the same features, yet about whom there could be no doubt as to their common origin. To use an expressive French phrase, they all have their *cachet particulier*.

In the accompanying plates, we have attempted to arrange (under several divisions), into groups, the different forms of the cancer-cell we have met with. In making the selection from the numerous drawings we have collected in our album, we have thought it better, instead of giving only the types, so to speak, of the several shapes under which we desired to include all the various modifications, to show as many as possible of the numerous varieties. For the rudeness of the designs themselves we ought, perhaps, to apologize, but they are, as far as we could make them, exact representations of what we saw in the field of the instrument. We will first describe the proper elements separately, and then speak of the objections offered by Dr. Bennett, and some others, to their distinct characters as pathognomonic of

* *Recherches sur la Phthisie*, 2^{ème} édition, Paris, 1848.

cancer, giving drawings of other elements confounded with them. The points of dissimilarity we will call attention to with a view of fixing the differential diagnosis. The mode we have employed has been simply to place between two pieces of glass a drop of the juice, obtained either from gentle pressure, or by scraping the cut surface with a scalpel, diluted with a little water. The cutting off of small slices with Valentin's knife, and examining the whole mass together, will exhibit, almost invariably, more or less fibrous structure, but necessarily the lens employed must be much feebler, and the cell is not seen to the same advantage; moreover, the fibrous element is purely accidental, and is found in a vast number of tumours. The instrument used is a first-class one, manufactured by Nacet. The power we have habitually used in studying cancer element has been one of 555 diameters (Nacet's No. 6). Mr. Bennett used, in his researches, one of 250, which he recommends to others. We state this for the purpose of explaining why it is he has omitted some characters of the element which we believe are of great importance. The element of cancer consists of three parts, *cell*, *nucleus*, and *nucleolus*, all of which are peculiar to it. We will consider—

1. The cancer nucleus, as inclosed in a cell, or as floating free by itself.
2. The polygonal, or more or less spherical and ovoid cell.
3. The caudated cell.
4. The fusiform cell.
5. The concentric cell.
6. The compound, or mother cell.
7. Agglomerated nuclei connected by amorphous tissue.

In all the varieties of cancerous tissue, nuclei are to be found either enveloped by a cell, or floating free, generally more or less of both; in some specimens, there exists a large number of free nuclei with only an occasional cell. The form and appearance of these nuclei is the most constant and unvarying of all cancer elements. They are (see Plate I. Fig. 1, *a*) ovoid, or more or less round; the latter are found more particularly when the eye or the lymphatic glands are the organs diseased. Sometimes (as in *b*), we find little pieces of the wall of the nuclei apparently nicked out, but evidently it is purely accidental, and the proper shape can easily be recognized. They have, ordinarily, in width, a diameter of from 1-100th of a millimetre, or (a millimetre being equal to .039th of an inch) of .0039th of an inch, to 1-66th of a millimetre, in one instance we met with one as wide as 1-38th of a millimetre; in length they measure from 1-133d to 1-100th of a millimetre. Their contour is dark and well defined, with the interior containing very minute dark granulations; indeed, when the specimen is perfectly fresh, they have a homogeneous aspect, the granulations being so small as to give the appearance of a mere shading (see Plate I. Fig. 1, *c*); if the specimen is kept a day or two, we find the interior filling up with larger granulations (as in *d*). Within these nuclei, when they have not been obscured by granular or fatty degeneration, there is found habitually a small body, or

nucleolus, averaging in diameter about 1-500th of a millimetre. These nucleoli have somewhat of a yellowish tinge, with a brilliant centre and dark borders, refracting light like the fat vesicles. We would call attention, particularly, to the peculiar brilliancy of the centres of these nucleoli, which, we think, is characteristic; it can be almost invariably noticed, if the focus is varied. Their large size, in proportion to the nuclei, should also be noticed, together with the great variableness of their position, sometimes being near the centre, and again in close contact with the walls (see *c*). Ordinarily, in other elements, they are found almost constantly in the centre. Very frequently, two or three nucleoli are found within the same nucleus. M. Robin* mentions the action of acetic acid upon cancer nuclei and their nucleoli, as differing from that on other elements, particularly epithelial; it renders the nucleus gradually paler, together with the cell, destroying neither—but the nucleolus is perfectly untouched by it; whereas in epithelial cells, where generally in those of the skin the nucleoli are wanting, the action of acetic acid destroys the cell, leaving the nucleus unaltered.

It is of primary importance for the proper examination of the cancer nucleoli that the specimen should be fresh. Such being the case, we do not remember ever having found these peculiarities wanting. Mr. Bennett says there is nothing peculiar about the cancer nucleus. But is his opinion to be wondered at, when, often from the low powers used, he could not see at all the nucleolus? The same confusion is produced by Dr. Brinton,† he having used a lens of 200 diameters. A high power as well as a clear definition is necessary.

We have examined some specimens in which free nuclei were in great abundance, and where, after long-continued diligent search, we were unable to discover any cells. More particularly is this the case in cancer of the liver, of the pylorus, and of the lymphatic glands; more rarely in that of the eye. In the breast, many full-formed cells are found with more or less of free nuclei floating in the blastemic fluid. It may be well to remark here that we find also free nuclei of fibro-plastic and epithelial cells, of the finest bronchial ramifications, each with their peculiarities. Mr. Bennett appears to us to have confounded them all together in speaking of what he calls fibro-nucleated tissue.

In regard to the cells themselves of cancer, although we stated their forms as very variable, yet many of them are modifications of the *polygonal*, which may be considered the type. In explanation of the theory of the shape and size of various cell membranes, we would refer the reader to Professor Schwann's views;‡ undoubtedly, as he supposes, the close crowding together, and the processes of endosmose and exosmose, may be the producing cause.

* MS. notes of his Cours de Histologie, 1850.

† Philadelphia Medical Examiner, Dec. 1861.

‡ "Microscopical Researches into the Accordance in the Structure and Growth of Animals and Plants," by Th. Schwann. Sydenham Soc. edit.

Thus we observe that in hard firm tumours, particularly those of the breast, and ovaries, the cells found are exceedingly irregular, sometimes nearly triangular. (See Plate I. Fig. 3, f.) The ovoid or spherical are more frequently met with in soft or medullary cancer (see Plate I. Fig. 3, g), where there is but little pressure, although its juice appears often to be but one mass of cells. It is rare, however, that perfectly round cells are met with, but very generally the angles are well rounded in those which appear to be derived directly from the *polygonal form*, the diameter of which is very variable, ordinarily from $\frac{1}{15}$ th to $\frac{1}{5}$ th of a millimetre. One peculiarity of this, as of the other forms of cancer-cell, is the presence of the granulations of different sizes in their interior; whereas, in epithelial cells, the interior is generally, when fresh, of course, homogeneous. In cancer, we find the three varieties of granulations given by M. Robin; * *first*, the very fine black dots found in all organic elements, and named by the French, very appropriately, *poussière organique*; *secondly*, the gray granulations, a form somewhat larger; and, lastly, the fat granulations distinguished by the refraction of the light.—This first variety of cells contains nuclei, having in their interior invariably one or more nucleoli, both of which retain the characteristic points described above. The large size of the nucleus, in proportion to the diameter of its cell, will at once strike the eye of the careful observer. The variable position, also, of the nucleus within the inclosure, appears to us to be peculiar to cancer; in cells of other structures, the rule is to find the nucleus very nearly in the centre, except with fibro-plastic cells, where the nuclei appear to have a peculiar affinity for the walls. All varieties of cancer cells contain very frequently two or more nuclei; whereas, the epithelial, more particularly those found on the surface of the body (where there is most danger of confusion and doubt), but rarely have more than one. Moreover, the cell of epithelium is much larger than that of cancer, yet the cancer nucleus is twice as large as that of epithelium, as is also the nucleolus, compared with that found in epithelium.

Caudated Cells.—This variety of cancer element appears to be considered the cancer-cell by persons unfamiliar with the microscope. The French pathologists speak of it as *la cellule en raquette*. (See Plate I. Fig. 2.) Its general aspect is the same as that of the preceding, the only difference being the prolongations, one, two, or three in number, branching off from the body (so to speak) of the cell; sometimes there are as many as five projections. There is no regularity about them, as the reader may perceive in the plate; indeed, they frequently take the most grotesque shapes.

This form is met with more or less in all cancerous tumours, but invariably in those of the bladder; cancerous degeneration of the parotid often contains them in considerable abundance.

Fusiform Cancer-Cells.—(See Plate II. Fig. 1.) This shape is caused by

* Tableaux d'Anatomie, &c., par Ch. Robin. Paris, 1851.

a swelling in the centre, with the ends pointed, forming often a very acute angle. It is found mixed with the other forms in all parts of the body; but always more numerous in cases where the disease has attacked the bones. M. Robin* says that he has never examined cancer of the bones without finding this variety. It is this form which Mr. Bennett confounds with fusiform fibres of fibro-plastic tissue (see Plate III. Fig. 4), making no distinction between them, but describing them together under the name of *fusiform corpuscles*. Except some similarity of shape, we cannot see how they could be mistaken for each other. We ask the reader to compare the drawing of these two things, and he will at once see that the cancerous is double in width and length; moreover, its nuclei are much larger, and the nucleolus is much smaller in the fibro-plastic, where the absence of the clear bright centre, &c., may be noticed.

The *Concentric Cancer-Cell* (see Plate II. Fig. 2) is formed of an ovoid or spherical body, surrounded by concentric rings, so as to give the peculiar appearance of circles around a centre, increasing in size as they get further out. The centre resembles in every respect the ordinary cancer nucleus, and sometimes other nuclei appear between the circles, and occasionally a nucleus is seen pressing against the outside of the cell wall. It is not known how this variety of cancer constituent is formed, and we forbear giving any of the conjectures in regard to them. Sometimes a mass of epithelial cells are pressed together, and present somewhat this appearance. This cell is met with but rarely, and but few in a specimen; it is more likely to be seen, says M. Robin, in the uterus, breast, and ovaries, than elsewhere; it never forms the basis of the tumour, but is merely accessory. According to Robin, it exists more frequently in the form of cancer tissue, which, in consistence, is between schirrous and encephaloid.

Having ourselves but one drawing of a distinctly marked specimen of this cell, we borrow for our plate one from M. Lebert.†

The *Compound or Mother-Cell of Cancer* (see Plate II. Fig. 4) is of very variable shape, as the drawings show. They have received this name from the views entertained by some authors, more particularly Küss and Bruch, of their splitting up into smaller segments and multiplying by division. They contain often three, four, or more cancer nuclei. We ourselves have never seen more than seven within one cell, although Lebert gives a drawing of one containing as many as nine. Some consider that secondary cells are formed within the parent one, and are let out by the rupture of the outer wall. It is, however, mere conjecture.—The last form in which these elements are exhibited is where a number of nuclei appear to be glued together, as it were, by the amorphous blastema in which they are generated, without there being any recognizable cell wall around them. M. Robin‡ calls them *plaques à*

* MS. Notes of his Cours d'Histologie, 1850.

† Physiologie Pathologique. Atlas, Plate XVIII.

‡ Tableaux d'Anatomie, 1851.

noyaux multiples. The size of the envelop about them prevents them from being confounded with anything else. These *agglomerated nuclei* (see Plate II. Fig. 3) are nearly as rarely met with as the concentric cell.

All these varieties of cancer element can be seen in the same specimen, although, as we mentioned in speaking of each, they have separately organs of selection. Cancer cells, of course, like homomorphous elements of the organized animal or plant, have their periods of growth, and development, and decay; their progress to maturity may be sometimes arrested, and account to us in some measure for the great variety of appearance, structure, and size. For some interesting remarks, in regard to the retrograde metamorphosis of all tissues, both normal and pathological, we would refer the reader to an article by Dr. Burnett.*

Out of the body, cancer elements change very rapidly, more so than any one element we have met with. Often, in the course of the first day, they become degenerated by the appearance of fatty granulations, which often hide their distinctive characters. Unfortunately, they cannot be preserved in any fluid. Alcohol coagulates the albuminous cell wall. Mixed up with what we have designated cancer elements are often found crystals of cholesterine and of triple phosphates of ammonia and magnesia, filaments, fat globules, crystals of margarine, pus (see Plate II. Figs. 5 and 6), &c. Wherever there is inflammation, especially of a chronic character, we are apt to find fibroplastic elements; consequently, we must not hastily conclude, because we find them in a tumour, that there is nothing else there. The importance, therefore, of examining thoroughly, as far as possible, each portion of the specimen, cannot be urged too much. If but one cancer-cell be found, it is conclusive. That which has been designated *melanotic cancer*, is merely a mixture, with true cancer elements, of free pigmentary granulations, or of the peculiar cells of pigment.

We have already given our belief as to whether or not these elements are so characteristic that none others, either normal or pathological, can be confounded with them. Some authors of high standing have asserted that such is not the case. Vogel admits that the cancer element is sometimes characteristic; but, judging from his drawings, we should say he used the same power he did in examining the triple phosphates, 90 diameters. Dr. Walshe, in his otherwise complete monograph, devotes but little attention to the histological arrangement under the microscope. Mr. Bennett is the most serious opponent to the diagnosis of cancer by the use of the microscope. With all due regard for one so eminent in the scientific world, we are forced to state the impression a careful perusal of his work has left upon our minds—that he repeatedly contradicts himself. In some places, he gives the characteristic appearance of the cancer element, which he so names, and then again he speaks of epidermic cells becoming cancerous. In one place, he speaks as though the appearance

* American Journal of the Medical Sciences, July, 1851.

he admits generally found in cancer was merely a state of development of normal elements. He says, in part of his treatise, that such and such cells are characteristic of cancer, and then, afterwards, of epithelial cells steeped in water, resembling, in every particular, cancer-cells, and of young epithelial cells also being indistinguishable from them. He concludes by drawing the diagnosis of canceroid growths (the signification of which he has extended so as to destroy the definition given to it by Lebert, who invented it) as not containing the cancer element, and yet he denies there is any cell, &c., only found in cancerous growths! We give, however, that others may compare them, the histological elements with which Mr. Bennett thinks cancer can be confounded.

In regard to epithelial elements, we give (Plate III. Fig. 1), young epithelial cells from Lebert's plate, and we think it unnecessary even to call the attention of the reader to the general aspect of the cell, the proportion the nucleus bears to the cell, the absence of any nucleolus, &c.; the other varieties, ordinary tessellated scales (Fig. 2), cylindrical and ciliated (Fig. 4), could scarcely be mistaken for any other element. We draw (Fig. 9) pavement epithelial, seen with the same power we used with the cancer elements.

Fibro-plastic elements possess a peculiar interest in being the only ones where there is any ground for seeing a resemblance to cancer elements. They were first defined by M. Lebert, who thought them always the product of disease. Further researches have convinced him that such is not the case. In the healthy subject, they are found in the bladder, ovaries, liver, mammary gland, uterus, &c. According to Robin,* the internal membrane of the Graafian vesicle is the only membrane, in the state of health, which is formed altogether of it. The discovery of them in the uterus is due to M. Robin, who has confirmed M. Coste's interesting researches in regard to the hypertrophy of the uterine mucous membrane during the evolution of the Graafian vesicles, and in regard to the same membrane forming the coverings of the foetus, known as the *decidua vera* and *reflexa*, by finding that the fibro-plastic cells, as one of its habitual elements, actually become larger as the first stages of pregnancy advance.† It is, moreover, fibro-plastic tumours which are the true sarcomatous ones, and which are so frequently confounded with cancer. Their slow growth, the absence of the cancer juice, their return after the operation *in situ*, but not elsewhere, showing there is no constitutional taint; their being frequently encysted, which cancer never is; their carnified consistence, and their having the cellular tissue as their point of departure, and generally not organs, are important diagnostic signs.

We give the true fusiform corpuscle (Plate III. Fig. 4) of this tissue, the length of which is often as much as from $\frac{1}{16}$ th to $\frac{1}{3}$ rd of a millimetre. The narrowness of their width, the smallness of their nuclei, the nucleolus, and, indeed,

* MS. Notes of his Cours d'Histologie, 1850.

† See *Traité Pratique des Accouchements* par Cazeaux, 8ième edit. Paris, 1850.

the whole aspect, would prevent, we should think, any one who is familiar with microscopic investigations, from confounding them with anything else. The fibro-plastic cells and their free nuclei (Fig. 5) could be mistaken for cancer by a superficial observer. They are ovoid, and sometimes polygonal, varying in diameter from $\frac{1}{100}$ th to $\frac{1}{8}$ th of a millimetre. The appearance, however, of the nucleus itself with the nucleolus, differs very widely from cancer, the granulations in their interior are very much finer, and of more uniform size than those found in cancer. The free nuclei of fibro-plastic tissue are so much smaller as to be easily known when met with.

But the strangest comparison we find in Mr. Bennett's book is between cancer and cartilage elements. Since Müller's articles on enchondromatous tumours, the attention of pathologists has been much turned to their investigation. Had we the time and the space we would describe particularly the elements of cartilage, which compose this class of morbid growths, and which are as clearly marked as striated muscular fibre or any other histological element. Suffice it now to remark that within a homogeneous structure, composed principally of gelatine, and called hyaline, are found excavations or cavities measuring often more than one-twentieth of a millimetre, more or less of an irregular ovoid shape, with cells (not corpuscles as was formerly supposed), generally of one-fiftieth millimetre in diameter, which contain a nucleus often filled with fatty granulations, so as to destroy the nucleolus. The hyaline structure invariably accompanies them, and bounds them on all sides; this has been considered so characteristic of cartilage as to preclude all danger, independent of the form of the cell, of its being mistaken for anything else.

Mr. Bennett tells us, that when enchondromatous tumours become softened, and the cells escape from the cavities they resemble very closely cancer. It has never been our good fortune to meet with any such cases, but we confess we cannot understand how, even if the cells were free, they could be taken for those of cancer. Compare them (Plate III. Figs. 7 and 8) with any or all of the varieties of cancer element (Plates I. and II.), and remark the difference of shape, &c.

In Plate II. Fig. 5, we give a drawing of *pus*, before the addition of any reactive, and, in Fig. 6, we give the same corpuscles, acted upon by acetic acid. It will be noticed that with a high power, frequently a dim outline of the nuclei can be seen when the corpuscles are unmixed with any reagent. We are glad to have the support of Bennett and Robin in stating that there is no mucus-corpuscle. What has been so called was either *pus*, so easily produced on mucous membranes, or epithelial nuclei.

Thinking it would be not uninteresting to the reader to compare the element of tubercle with that of cancer, we give (Plate III. Fig. 3) several corpuscles found in a specimen of softened tubercular lung handed to us while copying off these remarks; from the first preparations examined we could have given almost any number, but the few we have drawn are perfect type specimens.

A few words in conclusion, in regard to the development of cancer. We forbear saying anything of the absurd theories of its being produced by infusoria, &c. Of where and how it originates we must acknowledge our ignorance. That the materies morbi, whatever it may be, is propagated by the blood it is rational to suppose; but certain it is, the element of the disease is never there found, no matter how contaminated the whole system may have become. We think that M. Lebert has proved, in his researches on inflammation,* that pus, inflammatory corpuscles, pyoid globules, &c., are never formed within the bloodvessels, but entirely external to them in the effused liquid; indeed, even the three blood globules are too small to exude through the coats of the capillaries; the red colouring matter, the hematine, may discolour the effused serum; but if any blood-globules, even to the minute globuline, are discoverable, there must necessarily have been a rupture. This fact is one of vast importance in questions of pathology in regard to the absorption of pus, &c. The cause of the development of cancer is still inexplicable, but we know that in the nutritive material thrown out there is cancer blastema mixed up with it, and that the elements of cancer are formed together with those of the organ or tissue where it is developed. After this, the cancer tissue is nourished as are the healthy structures.

Dr. Walshe carries out Schwann's cellular theory in regard to cancer to its greatest extent, and thinks cancer is propagated by the generation of cells from cells, but his conclusion was a theoretical one. We need not apologize for quoting so frequently M. Lebert, who states that after having carefully for years examined, both before and since the publication of Schwann's work on embryonic cells, the cells, &c., of the adult in the healthy tissues, and in morbid products, he is convinced that, in morbid tissues especially, each and every cell, fibre, &c., is formed separate and apart from the cancer or other matrix, or blastema. Thus a new deposit of blastema is necessary to give rise to new cells. At first a small nucleus is formed, which becomes larger and larger, then gradually a nucleolus is formed in the centre, and the whole is enveloped in a cellular wall, which swells out by endosmose, until it reaches the usual type, size, and form. It can become deteriorated by diffusion, by rupture of its walls, from internal granulations, either molecular or fatty, by atrophy, &c. In this way, the cells are formed from the matrix, and not from direct cellular generation, and disappear, and are not, and cannot, indeed, be taken as such into the circulation.

There is, perhaps, no doctrine or statement in medical science, which has had so universal an acceptance as that of M. Schwann's, in regard to cell-formation; with him, all the tissues must necessarily, both vegetable and animal, pass through the transition state of cells. All, it appears to us, will be surprised, if they read Schwann's work itself, to see upon how slender a foundation he erected such a superstructure, as the universal application to the

* See *Physiologie Pathologique*, t. i.

tissues of all kinds and sorts, of the cellular theory of formation. Henle believes that nuclei are the primitive elements formed.

But we have what to us is the highest authority against the entire adoption of Schwann's views as applicable to all organisms in the researches of MM. Lebert and Robin. In a recent publication by M. Robin,* he defines with his usual clearness the doctrines professed by him on this subject. He says that strictly speaking there is great misapplication of the term *cell*, which is a small body with a wall, a cavity, and a contents. This exists in most of the vertebrata only during embryonic life, when the being is composed entirely of cells. When it becomes a foetus, *fibres, tubes, &c.*, form; cells, properly speaking, disappear, and together with the fibres, &c., a flat body is formed, to which the term of cell is generally applied, which is a mass of the same density in the centre as at the periphery, without a true wall or a contents, with a nucleus in the centre. There are, however, some few exceptions to this; in certain glands the elements retain their walls, cavities, and contents; this is more particularly the case in invertebrated animals. M. Robin, then, acknowledges that the cellular theory is true, so far as it relates to the fact that all animals and vegetables derive in the first instance their structures from cells; that is, that they are born from cells which are formed by the segmentation of the yolk of the egg. These cells, however, are transitory, properly speaking, *embryonic*, because they there end, and are destined to be replaced by permanent elements; in the human subject, the embryonic life only continues until the eleventh day after conception. So far Schwann's view holds true; the animal is during embryonic existence as the vegetable; but the originator of this beautiful theory would carry his doctrine much further, even into foetal and adult life. M. Robin professes that, during and after foetal life, there is one of two processes in the formation of the elements of the tissues, organs, &c.: either there is a direct metamorphosis of the embryonic cell by a change in its form, volume, consistence, &c., into anatomical elements, such as cells of the epidermis, &c., or else there is a substitution of entirely new elements for it, which are formed altogether independently of it in a new cytotblastema.

This process of metamorphosis is universally true in the vegetable world, but only in the animal as regards what he calls *les produits*;† that is, those parts, which although derived from the tissues themselves and capable of being reabsorbed, are yet not part of, nor essential to them; that is, those which have merely a vegetable function, including therein more than we express by secretions and excretions. Some of these *produits* are destined to be at once ejected without serving any purpose in the economy, such as the urine, the feces, the sweat, &c. Others of them, on the contrary, as the

* Supplément au Dictionnaire des Dictionnaire de Médecine, article Ostéogénie. Paris, 1851.

† See Preface to "Du Microscope et des Injections, &c." By Ch. Robin. Paris, 1849.

saliva, gastric juice, bile, pancreatic secretion, the sperm, the epithelium, &c., are needed, and are used by the system for the protection of the body, preservation of the species, promotion of nutrition, &c. In these, there is a transformation of the true commencing cell into new elements.

Les constituants, the tissues themselves; that is, those parts which have animal as well as vegetable functions, are formed by the second process, the *substitution* of new and permanent elements for the transitory or embryonic cells, which disappear entirely. In one word, a new matrix is effused in which there is a spontaneous generation of new elements in each tissue, the old being dissolved or reabsorbed, and playing no part in the new formation. This mode of formation by substitution exists only in the animal, and with it merely in regard to the constituents of their tissues; these elements are of a permanent kind, and are generally in the form of tubes, fibres, homogeneous uniting tissue, &c., and but rarely of cells; the reverse of this is the case with *les produits*.

M. Lebert, in his researches on inflammation, watched very closely under the microscope in wounds of animals the formation of fibres, cellular tissue, &c., and he tells us that they acquired immediately their permanent shape without going through any cell stage. True muscular fibre cannot be reproduced after foetal life.

These three orders of facts, it will be remarked, are very closely linked together.

The *cellular theory* is true of embryonic life for both vegetables and animals.

The *theory of transformation* is applicable to the formation, during foetal and adult life, of all the elements of vegetables, and merely to those parts of the animal which have only vegetable functions to perform.

The *theory of substitution* applies in no particular to the vegetable kingdom, but solely to the formation of the anatomical elements of the animal tissues.

We hope the reader will pardon our prolonging this paper by this digression, but we felt grateful to M. Robin for giving the right direction to, and thus modifying, after devoting years to the investigation of the phenomena of the formation and growth of our tissues, the extravagant theory of Schwann, which some have thought almost explained all the phenomena of life. We say we felt so much indebted to him for all these and many other valuable truths communicated by his works and orally, that we could not forbear giving these beautiful results to the lovers of science in this country.*

* Since writing the above, our attention has been drawn to Dr. Pope's translation, in the September number of the *St. Louis Medical and Surgical Journal*, of M. Broca's thesis.

Fig. 1.

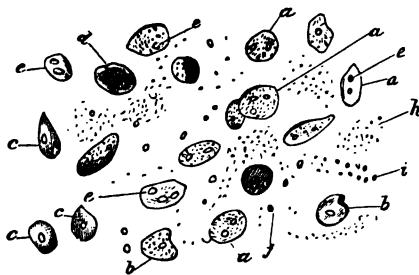


Fig. 2.

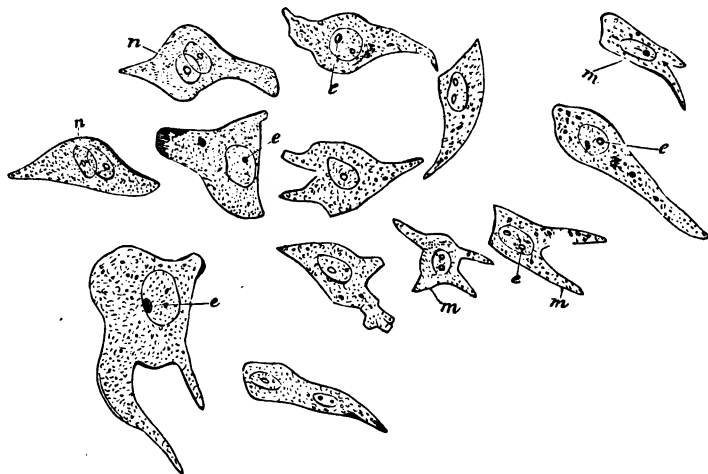
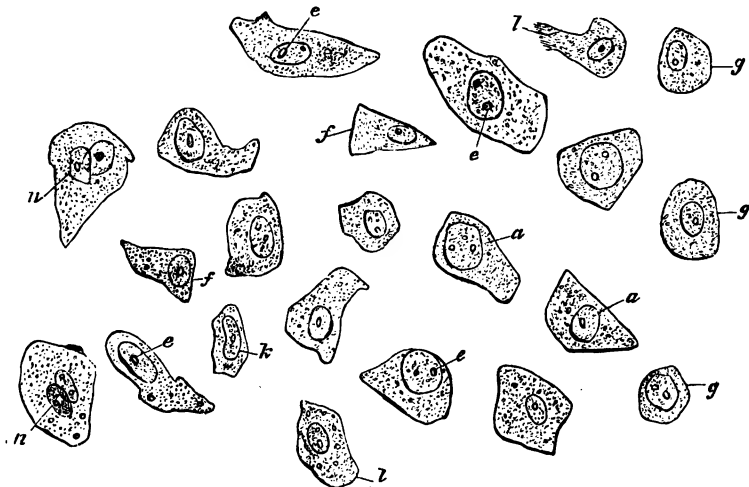


Fig. 3.



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Fig. 1.

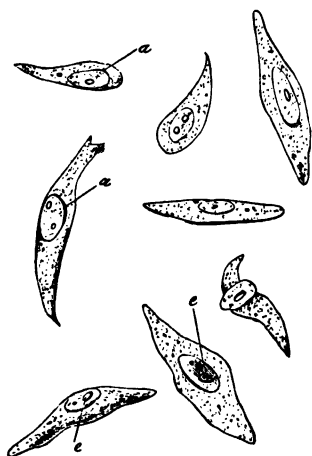


Fig. 2.

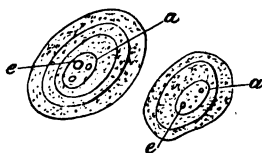


Fig. 3.

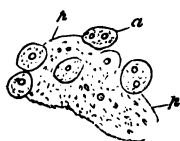


Fig. 4.

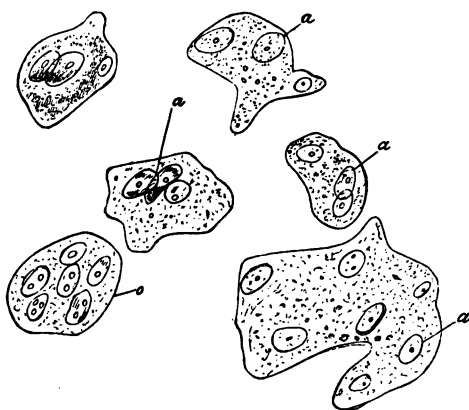


Fig. 5.

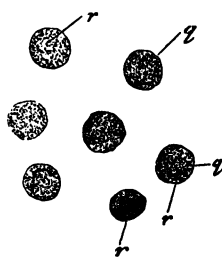
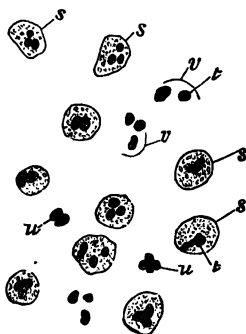


Fig. 5.



EXPLANATION OF PLATES.

PLATE I.

[ALL THE CANCER ELEMENTS IN THESE PLATES ARE MAGNIFIED 555 DIAMETERS.]

FIG. 1. *Free cancer nuclei*; *a*, type form; *b*, the same with a piece nicked out of the side accidentally; *c*, shows a free nucleus, in which the molecular granules are very minute, often met with in perfectly fresh specimens; *d*, a nucleus, in which larger granules have commenced to form; *e*, the characteristic nucleolus with its dark contour and bright centre; *h*, fine molecular granules; *i*, the second variety of granules, or gray granulations; *j*, fat granules.

FIG. 2. *Caudated cancer-cells*; *m*, the most usual forms; *n*, cells containing double nuclei; cancer of the bladder invariably contains this variety.

FIG. 3. Forms of *cancer-cells* derived from the *polygonal* or type variety; *g*, spherical cells; *a*, dark contour of inclosed nucleus; *e*, the nucleolus; *k*, a nucleus with its contour pressed out of shape; *l*, a form of cell frequently seen, where there is a deficiency of part of the wall; *f*, from pressure rendered triangular.

PLATE II.

FIG. 1. *Fusiform cancer-cells*, found in great abundance in cancerous disease of bones; *a*, the nucleus, which, in this variety of cell, is almost constantly ovoid. The transverse diameter of the cell and the size of the nucleus in proportion to the cell, together with the characteristic nucleolus, distinguish this variety from the fusiform fibro-plastic element.

FIG. 2. Two *concentric cancer-cells*; *a*, the cancer nucleus, the size of which is always in proportion to the innermost circle; *e*, the brilliant nucleolus.

FIG. 3. *Agglomerated nuclei*; *a*, nucleus; *p*, amorphous uniting tissue.

FIG. 4. *Compound cancer-cells*, containing three or more nuclei; *a*, nucleus; when there are more than one nucleus within a cell they are smaller than the single nuclei; *o*, from Lebert.

FIG. 5. *Pus corpuscles*, magnified 833 diameters; *g*, type form before the addition of any reactive; *r*, outline of nucleus seen surrounded by thick granulations.

FIG. 6. The same after the application of acetic acid; *s*, the irregular contour of the corpuscle freed from the granulations, leaving the nuclei clear; *t*, characteristic nucleus without any nucleolus; *u*, free nuclei, the walls having been destroyed. Diameter of pus-corpuscle varies from 1-100th to 1-80th millimetre, that of the nucleus 1-833d; *v*, remnant of contour.

PLATE III.

- FIG. 1. *Young epithelial cells* (from Lebert's plate); *w*, cell-wall filled with few and small granules; *z*, the nucleus, very small in proportion to cell, and containing no nucleolus.
- FIG. 2. *Tessellated epithelium*; *y*, nucleus without nucleolus, diminutive in proportion to cell; *z*, the cell with homogeneous minute granulations filling up the centre. Diameter of the cell when taken from the skin 1-10th millimetre.
- FIG. 3. *Corpuscles of tubercle* (833 diameters); 1, corpuscles found in softened tubercular matter; a small irregularly formed globular body with neither nucleus nor nucleolus, measuring 1-142d millimetre in diameter; 2, interior granulations; 3, free loose granulations.
- FIG. 4. *Fusiform corpuscles of fibro-plastic tissue*; 4, the narrow and long fusiform cell, containing a nucleus (5) with a small dot in its centre for a nucleolus; average length of cell 1-12th millimetre. (Magnified 555 diameters.)
- FIG. 5. *Spherical fibro-plastic cells*, found in the uterus and in other organs in the healthy subject; also as the result of chronic inflammations; and forming, with the preceding variety, the basis of true sarcomatous tumours; 6, well marked cell; 7 and 8, nuclei inclosed in cells or floating free; transverse diameter 1-200th millimetre.
- FIG. 6. *Cylindrical and ciliated epithelial elements*, found in the nasal fossæ, trachea, Eustachian tubes, in the intestinal canal below the cardiac orifice; 9, hair-like extremities, which, during life, are constantly in motion; 10, nucleus clear in the centre.
- FIG. 7. *Cartilage elements taken from the condyles of the femur*; 13, hyaline tissue; 14, excavated cavity; 15, cartilage cell; 16, nucleus; 17, nucleolus very frequently drowned by the fatty granulations.
- FIG. 8. *Costal cartilage*; 18, hyaline substance; 19, cartilage cavity; 20, cell; 21, nucleus.
- FIG. 9. *Buccal epithelial scales*, magnified 555 diameters, to show more clearly their dissimilarity to cancer elements; 11, irregularly polygonal contour; 12, the characteristic nucleus without any appearance of a nucleolus, which is rarely met with in epidermic cells, or in those coming from the buccal surface.

Fig. 1.

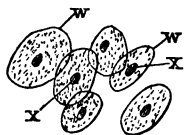


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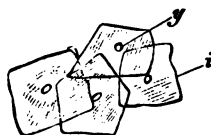


Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.

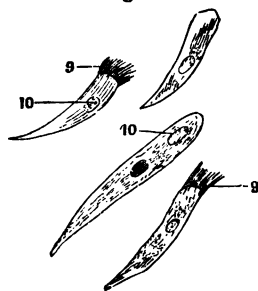


Fig. 7.

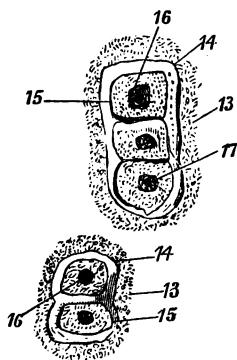


Fig. 8.

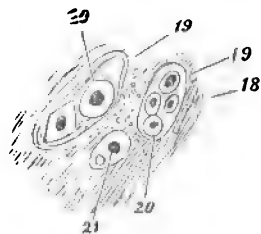
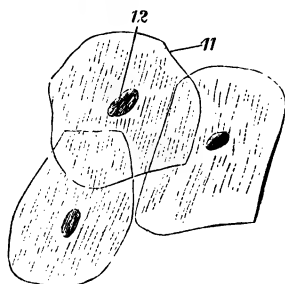
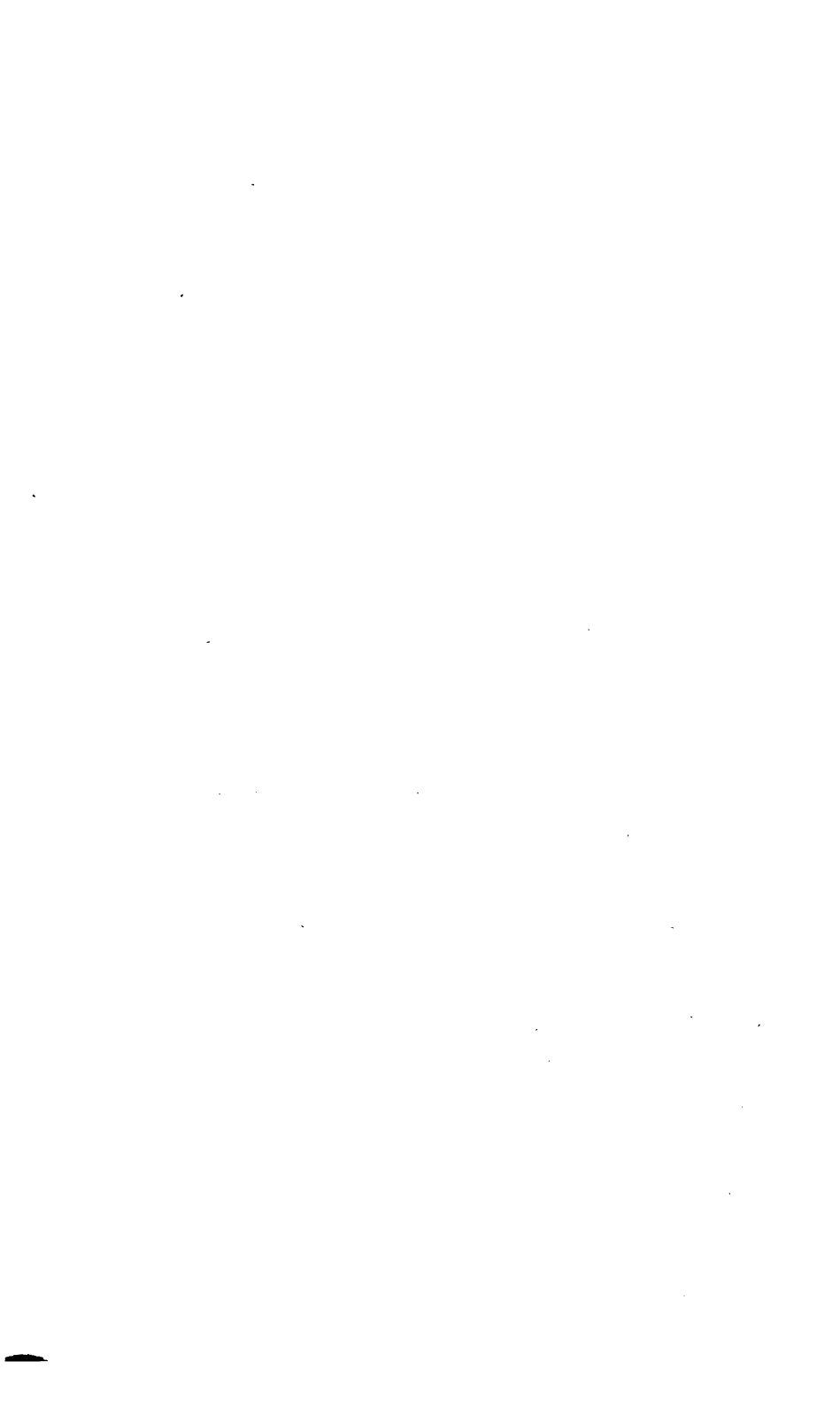


Fig. 9.





ART. IV.—*Extracts from the Records of the Boston Society for Medical Improvement.* By WM. W. MORLAND, M. D., Secretary.

May 24.—*Extroversion of the Bladder, with unusual Complications.**—Dr. JACKSON exhibited the specimen, taken from a patient of Dr. HOMANS's; child born at the full period, but died in a few hours; the bladder presents the usual red, irregular surface; the cord being inserted at its upper extremity. Opening of the ureters free. Kidneys well developed; but the left is situated quite low in the abdomen. The small intestine is forty-five inches in length, and opens freely upon the surface of the bladder, forming a very marked projection, which the friends mistook for a penis, and accordingly christened the child "John." Just below this opening there is another, from a very anomalous organ, which, it is supposed, may be a portion of undeveloped intestine, consisting of a tube about two and a half inches in length, very much resembling the appendix cæci, and being closely adherent to the inside of the pelvis; from this tube and towards its outlet, there are sent off two others, nearly half an inch in length, the common trunk of the three being about three lines in diameter; the parietes of these tubes were quite as thick as those of the large intestine should be; the inner surface was not peculiar, and the cavity was filled with very tenacious and nearly colourless mucus; the external opening was large, and traversed longitudinally by a well-defined, fleshy band. The testicles were well developed, and situated about at the brim of the pelvis; vasa deferentia traced down behind the organ last described. Glans penis situated at the lower margin of the bladder, and so small as to be hardly recognizable. Ossa innominata seem to be fully developed, but are separated at the symphysis to the extent of one and a half inches.

Spina bifida. Between the thighs were two tumours which would suggest the idea of a double hydrocele; one of them being about the size of a small orange, and the other equal to a large nutmeg, with a marked raphé between them; flaccid, encysted to the feel, and covered by integument, as spina bifida is when situated over the sacrum. The parietes of these cysts consist of cutis externally, a lining of serous membrane internally, and a loose intervening cellular tissue, but no fat; the two communicating freely, and there being a third that did not show externally. The cavity contained some ounces of clear yellow serum. Towards the upper extremity of the large cyst was an opening, through which a probe was passed and came out in the lumbar region between the spinal marrow and the membrane immediately investing it. The wings of the vertebræ having been cut away, the spinal marrow is seen to continue in substance down to the opening in the cyst; the very termination, however, being softened by cadaveric change, and probably by the passage of the probe. Sacrum somewhat deficient, as usual in these cases.

Organs otherwise well formed. Dr. J. remarked especially upon the fact of the spinal marrow being continued in substance down below where the cauda equina is usually formed in these cases of spina bifida in the sacral region, and of which there are already two specimens in the Society's cabinet; a fact which is particularly insisted upon by Cruveilhier, and stated by him to have been known to Morgagni.

* Omitted in the "Extracts" for July Number of this Journal.—W. W. M.

July 26.—Abdominal Abscess.—Reported by Dr. HAYWARD, Sen. Dr. H. visited a boy, fourteen years of age, about the middle of June, and found him suffering from some obscure trouble in the abdomen. Ten months previously, he had run a race of a mile with another boy, which was followed by great fatigue; the subsequent symptoms have been variable; the patient was much emaciated, the pulse small; abdomen tumid; there were night-sweats. A protrusion was observed at the umbilicus; puncture, with the exploring needle, discovered a purulent collection, which, to the amount of a quart, was evacuated; the pus was very fetid; its discharge procured the patient immediate and great relief; he had not been able to raise himself up without great pain for some time previous to the operation. Dr. Hayward supposed the case to be one of subacute peritonitis.

October 18.—The patient is now nearly well; he may, in fact, be considered entirely so, as nothing remains of his former difficulty, except a slight discharge from the orifice at which the pus was drawn off.

August 9.—Dr. STORER read from his note-book the following case of *Removal of a retained Fœtal Head*:—

4th. Was called at 5 o'clock P. M. to consult with a physician under the following circumstances: He was sent for at 6 o'clock A. M. to attend a case of labour. Finding an arm presenting, after much difficulty he turned the child, and brought down a leg. At 12 M. he had succeeded in delivering both lower extremities; and at 2 o'clock, the entire child, with the exception of the head, was delivered. Not being able to extract the head, he called to his assistance another practitioner; together, they made such traction as they thought justifiable, without producing the desired result. Having produced a luxation of some of the cervical vertebræ, and consequently unable to use any more force, they severed the body from the head to enable them the more readily to apply their instruments. As soon, however, as the head was separated from the body, it receded into the pelvis, and their efforts, continued for a long period, to fix and remove it, availed them nothing.

I found the woman much less exhausted than would have been imagined, with a tolerably good pulse, and not depressed.

The head could be reached only by passing the entire hand into the uterus, and could scarcely be retained in any one position by pressure being applied over the abdomen. The uterine contractions were so great that I several times removed my hand, perfectly useless by the pressure which had been applied to it—and I should have given up in despair of being able to remove the head, had I not felt that nothing should be left undone which could be attempted without additional risk to the mother. At last, I was able to pass the index finger of my left hand into an orbit; along this finger I introduced Smellie's scissors, and was so fortunate as to be able to pass them through the orbit into the brain. The distance of the head from the external passage may be judged of from the fact that, when the instrument was in the brain, its handles were not visible externally. After the contents of the cranium were removed, and the bones had collapsed upon each other, it was extracted by the hand without much difficulty.

The attending physician found some obstruction to the removal of the placenta from an irregular contraction of the uterus, and from its partial adhesion.

To an accoucheur who has never been called upon to perform the operation just described, the process may appear a very simple and easy one. But this is very far from being the case. It is an exceedingly difficult matter to have

the head retained in any one spot with sufficient force to perforate, should it be thought advisable; the scissors are constantly found to slip upon the cranium, beneath the scalp, and it may be a long time before the hook can be applied where it will retain a permanent hold.

CONQUEST observes, as if the operation were not a difficult one, "when this occurrence has taken place, it is necessary to have the uterus fixed, by the steady pressure of an assistant, on the abdomen, while the accoucheur proceeds to extract the head. This may be done by the long forceps, or by fixing the craniotomy-forceps, crotchet, or blunt-hook, in the foramen magnum; always accommodating the head to the largest diameter of the pelvis during the extraction." By others, the difficulties are thus portrayed. VELPEAU says: "At the superior strait, the operation is often found to be one of the utmost difficulty, and appears to be even impracticable, when the womb is scarcely contracted, and the face and occiput are not yet engaged."—JEWELL, in the *London Practice of Midwifery*, remarks: "In some instances it happens that the head is entirely separated from the body, when various means have been recommended for bringing it away; one way is a purse, one extremity of which, spread out on the hand, is so carried up into the vagina, and laid round the head, that it shall include the whole; by which means it is to be brought out. Another, is by the assistance of instruments, various descriptions of which have been recommended; these instruments may be considered as just so many contrivances to catch the head, as we catch a bird by putting salt upon its tail. If we get the instrument on, we may catch the head; and if we get the salt on the bird's tail, we may catch him, too. The way to extract the head is to open it, and when we have dilated it by the perforator, we should introduce the crotchet before we withdraw the perforator, in order to have the head always secure from slipping, as it otherwise would do. The difficulty is this, that whenever we touch it, we have a smooth slippery surface which we cannot keep, unless we always have an instrument within that hole which we have made; it will roll over the upper aperture of the pelvis."

SMELLIE has collected ten cases in which the head was retained in the uterus after the delivery of the body of the child. Four of these cases he saw in "consultation"—all of them occurring in the practice of midwives. Two of the remainder occurred also in the practice of midwives, and were reported to Smellie by the physicians called upon for advice.

In three of the four cases to which Smellie was called, the body appears to have been separated by force; in the fourth, the head was separated by incision. Each case was terminated by the crotchet; in two of the cases, where the child had been dead previous to the labour, the operation was performed with comparative ease. After minutely describing the case in which the head was severed from the body, Smellie adds: "This should be a caution to practitioners, never to separate the body from the head, if possible to deliver without using that expedient; but to wait with patience (when the child cannot be saved) the efforts of the pains, especially if the woman is not in absolute danger; for the head is much easier delivered with the crotchet, when not separated from the body."

Of the remaining four cases cited by Smellie from other authors, one deserves a passing notice. He observes, a case is mentioned in the Supplement to Lamotte's Treatise, "in which a gentleman could not deliver the head, which was separated from the body and left in the uterus. Nevertheless, he went to bed; and the first news he heard in the morning was that the head was delivered by the mere assistance of nature." Most probably the child

was dead previous to the labour, and decomposition had somewhat advanced, else it would be difficult to account for its unaided expulsion.

In another of these four quoted cases, Smellie says: "Dr. GRANGE, of Hatfield, told me of a case in which he and Mr. Wilson, of Enfield, were fatigued a whole day, in delivering a head, which was so slippery, that, for a long time, they were not able to open, or fix an instrument upon it."

Dr. RAMSBOTHAM (Francis H.), has met with but one case, which occurred in the practice of a midwife; there was a tumour in the pelvis, which increased the difficulty of the case. With the assistance of his father, the head was perforated at the sagittal suture, and extracted.

9th. Five days after delivery. Dr. Storer's patient has not a single unpleasant symptom; and says she feels much better than she did five days after the birth of her former child.

Carcinomatous Disease of the Uterus and Vagina.—Dr. WILLIAMS reported the results of a *post-mortem* examination of a case of some years' standing, which terminated fatally three months only after delivery. After the disease had been pronounced to be cancer of the womb, by her attending physician, the patient placed herself under the care of a midwife, who promised a cure, saying that "she had cured many such cases, but the physicians did not understand them, as they had no such organ themselves." Finding herself unable to prevent the hemorrhage, which occasionally occurred, she soon abandoned the field. The autopsy disclosed extensive destruction of the vaginal and uterine parietes. Dr. W. remarked, that it is worthy of notice that pregnancy should have gone on well, and parturition occurred without accident, while the reproductive organs were so extensively involved in disease, and that rupture into the peritoneal cavity might very easily have happened, previous to her death, by the application of any force—such as an examination by the speculum—ulceration having so deeply destroyed the tissues.

Dr. JACKSON said he had frequently examined patients in whom such rupture seemed very imminent. He had not met with actual perforation in his own dissections of these cases, but practitioners should be exceedingly cautious of instrumental vaginal examination in such patients.

Fatal Disease with Obscure Symptoms.—The following case, from Dr. SALTER, was reported to the Society by Dr. COALE. The patient was a book-binder, fifty-one years old; he has generally had good health; the only *severe* illness he has experienced, within his recollection, was an inflammation of the lungs, in 1836, when he was confined to his house and bed for nearly three months, under the care of Dr. HENRY G. CLARK. Since that attack, he thinks he has not been quite so strong as previously. Especially on the approach of every autumnal season, he would be affected with diarrhoea, lasting about twenty-four hours; and even during the summer season, when there was any sudden and decided change from heat to cold, he was almost sure to be affected with this diarrhoea for some hours. Besides this, during the winter months, he always experienced considerable oppression in his chest, unattended, however, by cough or pain. This oppression always left him on the approach of the warm season, and he continued quite well until the return of autumn, excepting on sudden changes of weather, as above mentioned. This was the usual routine from 1836 to 1852, with only one exception. In the latter part of the summer of 1850, he had an attack of mild dysentery, which did not oblige him even to keep entirely from his work, being easily

controlled. It continued about two weeks. On the approach of the spring of 1852, he did not recover his usual elasticity and spirits.

On Thursday, July 22d, he called on Dr. Salter, but not finding him at home, left a request to be visited at his own house. Dr. S., on calling, ascertained that his patient had not felt quite as well as usual since the month of April last, though in this respect his feelings were quite variable. He continued, however, regularly at his occupation, and his appetite was, for the most part, good. Dr. S. learned at this time also, that, on the 15th of July, one week previous to his visit, he had felt more unwell than usual; yet he could give no definite idea of his sensations, excepting that he was weak, and unable for his work. Of his own accord, he brought a pail of sea-water to his house, in the afternoon of the above-named day, and bathed himself by sponging his whole body with it, in his chamber. Shortly after this bathing, he was seized with violent rigors, which continued for some time, and he was forced to take his bed, in order to get warm. Soon after this, a diarrhoea commenced, and continued through the night, the discharges being quite frequent, but unattended by pain.

On Friday (16th), he felt better, and from this time until the following Thursday (22d), he attended to his business, with some interruptions, and considerable inconvenience. At his visit on this day, Dr. S. found him dressed, and sitting in his parlour, and he *appeared* as well as he ever saw him; there was no indication of any serious disease; the pulse was undisturbed; the tongue natural; bowels regular; skin in healthy condition; no pain or sense of soreness anywhere; appetite, however, was wanting, although food was not offensive. Dr. S. advised some vegetable bitter, and rest from labour; and, if the patient felt able, a few days' residence in the country.

Dr. Salter was summoned to the patient again on Monday, 26th of July, and was told that he had been to Billerica, on the 23d (Friday). The journey benefited him apparently; he passed a good night, and his sleep was refreshing; on Saturday morning, he reported himself better than for sometime previously. About noon, he was suddenly seized with intense pain in the lower part of the abdomen; a physician was called, whose remedies relieved the pain after an hour's suffering. Being anxious to reach home, he returned to Boston the same afternoon. On Monday (26th), Dr. S. found him in bed; he was feverish; the pulse 100 per minute, and slightly irritable; the tongue covered with a thin white coat; no headache; but occasionally slight pain in the lower part of the abdomen. On examining that region, some fulness and distension were remarked, but there was no tenderness upon any degree of pressure; there were frequent eructations of wind, with occasional hiccough. No change whatever took place in these symptoms, except gradual aggravation of them, until Thursday, the 29th July (one week from his first call on Dr. Salter); at this date, at the morning visit, the abdomen was very tympanitic, and other symptoms indicated rapidly approaching dissolution; still, he was frequently up, walking about the room, sitting upon the sofa, and, by his own account, feeling quite comfortable, experiencing no pain, and no material inconvenience from the distension of the abdomen; he continued thus until three o'clock, P. M., when, becoming faint (he was sitting up at the time), he was laid upon the bed; immediately after, in addition to the belching of wind, he was almost constantly throwing up the liquid contents of the stomach, especially after drinking, which, from great thirst, often occurred. This state of things, together with hiccough, continued, with scarcely any interruption, until within a few minutes of his death, which took place at about six o'clock the same afternoon. After his return from Billerica, no

attempt was made at anything farther than a bare palliation of existing symptoms, which was accomplished with tolerable success, by injections, fomentations, and anodynes, when necessary.

On *post-mortem* examination, sixteen hours from patient's decease, made and reported by Dr. F. S. AINSWORTH, the following appearances were recorded:—

A large quantity of frothy fluid ran from the mouth and nose on slight movement of the body, or on pressure made over the stomach; the fluid stained the cloths about the head a dark brown colour. The limbs were moderately stiff.

On opening the abdomen, the stomach and intestines were found to be distended by gas; several ounces of dark coloured bloody serum were found in the peritoneal cavity; the stomach and liver were natural in appearance and consistence; their peritoneal coats showed no signs of inflammation; on tracing the small intestines downwards into the lower part of the abdomen, and into the pelvis, they were found very red and inflamed; the peritoneal coats were adherent to each other by the effusion of coagulable lymph, flakes of which were found diffused in this portion of the peritoneal cavity, and of great thickness—on the intestines especially. The ascending, transverse, and descending colon appeared healthy; all signs of peritonitis seeming to be confined to the pelvic region. On opening the small intestines, the jejunum looked healthy, and also the ileum in its upper part, and until within two feet of the ileo-cæcal valve, where deep and extensive ulcerations of Peyer's patches were discovered, apparently of long standing; some of these were nearly cicatrized; others were in the process of healing; in several of them the destructive process had extended through the mucous and muscular, to the peritoneal coat; and, in one spot, the ulceration had perforated all the coats of the intestine, and had opened it into the peritoneal cavity. Over the ileum, where the deepest ulceration of the glands existed, and especially over the perforation, the serous tunic of the intestine was covered with a profuse exudation of lymph, which closed the perforation and glued the folds of the intestine together. The mesenteric glands of the lower portion of the ileum were inflamed, and, in one or more instances, suppurated.

The right lung was bound to the pleura costalis by strong and firm adhesions throughout its whole extent, but crepitated well; the left lung was larger than usual and apparently healthy; no tubercles found in either lung. The heart was small, flabby, and much loaded with fat; the mitral valves were thickened along their edges, and the semilunar valves of the aorta were considerably ossified; the pericardium contained more than the usual quantity of fluid. Other organs not examined.

Dr. J. B. S. JACKSON said he was inclined to consider the case reported by Dr. Salter as one of mild or latent typhoid fever; the disease not fully declared by the symptoms; the ulcerations were of an ashen-gray hue, and, moreover, the patient is stated to have been unwell since last April. Dr. J. referred to a patient attended by Dr. Strong, and who was complaining for four months: *post-mortem* examination showed both old and recent ulcerations of the intestines. In Dr. Salter's case, the same appearances are noted. Dr. J. thinks these cases not infrequent, and that a patient thus affected always demands the most careful watching.

Dr. PARKMAN asked if it be not true that perforation occurs most frequently in the so-termed "mild" cases?

Dr. JACKSON believed this to be the case.

Dr. GOULD asked whether it is usual for a patient to live so long after the

occurrence of perforation as did Dr. Salter's? Dr. G. had met with several cases, and had never known the patients to survive longer than twenty-four hours.

Dr. JACKSON considered the prolongation of life due, in the case in question, to the occlusion of the perforation and the "gluing down" of the intestine by the lymph; the peritonitis was thus circumscribed.

Dr. MINOT mentioned a case somewhat similar to the above. A man who had for some time been slightly unwell, was advised by his physician to abstain from labour and remain quietly at home; refusing to do this, he was attacked not long after (a few days), very suddenly, by violent abdominal pain, supposed to be that of colic. Dr. Minot was called to him at this time, and inferred the occurrence of intestinal perforation. The case terminated fatally in thirty-six hours. No *post-mortem* examination obtained.

[Dr. Minot has informed the Secretary, since the record was made up, that Dr. CHAPLIN, of Cambridgeport, who attended this patient before he came to the city, pronounced him then to be convalescent from *typhoid fever*; a few days only before he was seen, as above, by Dr. M.]

Wound of the internal Iliac Artery, caused by Instruments used with intent to expedite Labour.—Dr. HAYWARD, Sen., had seen, in a late number of the *London Times*, a report of a judicial action against a person accused of causing death by the manipulations above mentioned.

In conjunction with this, Dr. H. referred to another case of the kind, which, singularly enough, he had heard an account of while in New Bedford, where it occurred, upon the same day on which he had read the report of the *Times*. A married lady, thirty-five years old, and six months advanced in pregnancy, went to the office of a homœopathic practitioner, who, it is supposed, at her request, attempted to procure abortion, instrumentally; the membranes, however, as it subsequently appeared, were not ruptured; death followed; the operator is arrested and held for trial.

The following are the *post-mortem* appearances, communicated to the Society by Dr. J. B. S. JACKSON, who received them from Dr. LYMAN BARTLETT, of New Bedford:—

External Appearance of the Body.—Surface very pale, otherwise normal; in left hypochondriac region an apparently recent contusion, near the superior spinous process of the ilium, in size about that of a nine-penny piece—yellow and hard; eleven other similar, but smaller spots below this, upon the abdomen and upper part of the left thigh; slight superficial ecchymosis, as from a contusion, about the posterior commissure of the labia externa; similar spots upon the nates, each side of the anus; evident ecchymotic contusion over the posterior portion of the labia externa; abdomen considerably distended.

Dissection.—Upon opening the *abdomen*, about two quarts of bloody serum escaped; the intestines were seen to be covered by an apron of coagulated blood, about six inches in vertical, and ten inches in transverse diameter, and of an average thickness of two inches; on removal of this coagulum, the intestines were seen, pale; the folds of the mesentery, attached to the lower portion of the small intestines, are separated by a clot of blood which would fill a pint bowl; the inferior fold of the mesentery was ruptured by the pressure of the blood accumulated between the folds. The *uterus* was flaccid, and in volume about the size of a three-pint bowl; on its posterior surface, opposite to the promontory of the sacrum, was observed an opening through its parietes, made, apparently, by some cutting instrument, whose diameter would be that of a pipe-stem, or of the common catheter; corresponding to this

opening, another of the same size and appearance existed, going through the peritoneum forming the inferior fold of the mesentery. Beneath this puncture in the mesentery, and corresponding to it, was found an opening into the *right internal iliac artery*, one-fourth of an inch below the bifurcation of the main iliac artery, and of sufficient size to admit the point of a goosequill. On opening the uterus, a small foetus was found, measuring seven and a half inches from the vertex capitis to the nates; its finger-nails perceptible. The membranes were not ruptured; on the posterior internal surface of the uterus, one and three-fourths inches above its cervix, was a puncture, extending obliquely two inches in length, through the parietes of the organ and terminating at the puncture previously mentioned, so that a blunt-pointed probe passed readily through from one orifice to the other. About half an inch from this puncture was found another, made obliquely into, but not going through, the uterine walls; its course parallel to the former; its length one and a half inches. Contusion, with ecchymosis, observed upon the internal surface of the posterior portion of the uterus.

All of these punctures corresponded with the mouth of the uterus, so that an instrument passed into the vagina would go in the direction, and produce the wounds, above described.

Death followed these manipulations in about twelve hours.

Present at the *post-mortem* examination, Drs. Spooner, A. and J. Mackie, Fulsome, and Lyman Bartlett.

August 9.—Imperfect Physical and Mental Development.—Dr. TOWNSEND, Sen., exhibited to the Society a girl four years of age, who cannot walk or speak; all the other bodily functions are healthily performed; at birth, which was natural, she was supposed healthy and perfect; she notices objects somewhat, but the amount of intelligence is certainly small; she is mechanically supported into a sitting posture, not having the power of holding herself upright. Her appearance is rather prepossessing, with an absence of any idiotic expression.

Dr. GOULD reported a case in which, after severe and protracted labour, the child was stillborn. It was placed in a tub of warm water, and artificial respiration employed for about an hour, and, finally, breathing was established. She is now nearly fifteen years of age, and has always been healthy. In infancy, spasms and rigidity of the neck and limbs were noticed; contortions of the face and thrusting out of the tongue succeeded, so that she has an idiotic look. She has learned to talk, but articulation is difficult. She has never been able to control the limbs so as to be able to support herself; so that it is necessary to carry her about, and to feed her. She began to menstruate at thirteen, and has menstruated rather profusely. It was hoped that some favourable change might take place at this period; instead of which the contractions have become much more general and severe; and for a few weeks past, her sufferings have been intense, both day and night. The right arm is rigidly and constantly extended, and the fist clenched, and both the arms are so contorted that the elbows, much of the time, present in front; the right thigh and leg are flexed to the utmost, and also are drawn forcibly against or across the opposite limb, which is usually fully extended. For many nights in succession she has been unable to sleep beyond five minutes at a time. The recumbent posture always aggravates the spasms; and sometimes it is very difficult to retain her in an arm-chair. Opiates and antispasmodics of all kinds and in large quantities have been almost ineffectually employed.

Indian hemp at one time seemed beneficial. Chloroform has been taken very frequently, and soon relieves her, but its use is attended with nausea and vomiting to such a degree as, in a great measure, to preclude its employment. The intellect is unclouded, and the moral sense is unusually strong. She enjoys reading, and converses well.

In view of the unfortunate condition which has been observed so often to follow in similar cases, Dr. G. considers the expediency of long-continued efforts at resuscitation as quite questionable; especially in cases where the severity of the labour has been such that injury to the cranial contents might reasonably be apprehended. In asphyxia from causes not involving such injury, a different course might not be attended with the same objections.

Dr. JACKSON remembered hearing the same sort of cases mentioned by Dr. Bigelow, Sen. Dr. J. also said he had previously reported one or two cases to the Society, in which resuscitation was very difficult; in one of these instances, the child did not fairly breathe for three-quarters of an hour; both children lived to grow up, well.

Dr. STORER thought it pretty well established that children born under such circumstances are, if they recover at all, weak, puny, and short-lived.

[At the next subsequent meeting of the Society, Dr. ALLEY related a case analogous to that reported by Dr. Gould. The child presented the breech, and, when born, was quite black; by great exertion it was made to respire; now, at twenty-one years of age, the control possessed by this individual over the muscles is but partial. The mother once previously had a child born with the breech presenting; it was stillborn and not resuscitated.]

Dislocation of the Hip; Easy Manual Reduction under the Influence of Ether.—Dr. PARKMAN reduced a recent dislocation of the hip very easily with his hands alone, and unassisted, the patient being thoroughly etherized. The head of the bone was in the ischiatic notch: taking the foot in his hand, Dr. P. bent the leg on the thigh, and the thigh on the abdomen, and, with slight outward rotation of the foot, drew the limb downwards, with immediate reduction of the displaced bone. The dislocation was caused by the fall of some bags of coffee upon the patient, who was aiding in raising them from a vessel's hold.

Disease of the Cerebellum and of the Arteries at the Base of the Cerebrum.—Dr. MINOT reported the case. The patient was a female, aged sixty-eight, who had met with much care and hardship. She had borne several children. Within a few months she had suffered from vertigo, and there was loss of memory; the intellect was not impaired.

July 28. The patient walked out and became fatigued; next morning she rose as usual, but immediately fell to the floor, nearly insensible; she soon became stupid, although she was capable of being roused, and would then answer with tolerable accuracy and intelligence. Articulation was indistinct; respiration puffing, as in smoking; pulse 100, not feeble; pupils natural; urine passed involuntarily; the mouth was drawn to the right side; the left eyelid drooped. There was no paralysis of the limbs; she would not, or could not, protrude the tongue.

She was freely purged, and sinapisms were applied to the extremities.

The next day her condition was about the same; the dejections involuntary; six leeches were applied to the left temple. Towards evening her face became of a dusky-red hue, her skin burning hot; pulse at 100; articula-

tion unintelligible, and there was great drowsiness, from which she could with difficulty be roused; six leeches to the right temple, which bled very freely.

On the third day the skin was natural, the face pale, the pulse 100, weak and intermittent; the intelligence good, the replies to questions prompt and correct; the tongue was readily protruded for the first time, and the facial paralysis had considerably diminished; stimulants were ordered.

In the afternoon the drowsiness returned, with the puffing respiration previously mentioned; the skin was of a dark colour; insensibility speedily came on, continuing for thirty-six hours, when she died.

Post-mortem examination disclosed an excavation on the inferior surface of the cerebellum, having the appearance of an ulceration; it was uniform and lined with a false membrane; its extent, one and one-half inches in length, by one inch in breadth, and of capacity sufficient to contain a bean; the pia mater could be inflated over it; the arteries at the base of the brain were found extensively filled with atheromatous deposit. No *ramollissement*; the scalp was gorged with blood; the dura mater was adherent to the brain, and could not be separated from it without tearing the substance of the latter at one spot, at the left side of the anterior third of the longitudinal fissure; there were traces of old lymph deposit at this place.

Dr. Minot showed the specimen to the Society, and remarked, in addition, that Andral, in his researches, states that he had seen only sixteen cases of lesion of the cerebellum.

August 23.—Melanosis of the Eyeball. Reported by Dr. BETHUNE.—Mrs. B., æt. 62, first seen August 17. Health generally good. She never had disease of the eyes till one year ago; was first attacked with commencing loss of sight of the left eye, without pain or soreness. The sight continued to fail, and, in December last, the eye began to be painful occasionally, and the ball to enlarge and grow dark. These symptoms have continued from that time. Since the eye has troubled her, the appetite has failed, and sleep has occasionally been disturbed. Now, the right eye is well. Left eye, the anterior third of the ball is enlarged, and protrudes between the lids—is of a black colour, and presents a generally smooth, shining surface; at the superior part (where the discoloration commences) it is covered with large, dilated vessels. Lids apparently not affected.

20th. Operation.—This presented nothing unusual, except that the globe was found so soft, anteriorly, that the ligature, used to bring the eye forward, tore through.

31st. Discharged well.

On examination of the eye after removal, it presented the following appearances, described by Dr. J. B. S. JACKSON: "The melanotic mass protruded from the front of the eye, prominent, defined, and equal to about half an inch in diameter, though of an oblong form. A section having been made through the globe of the eye, the diseased mass was seen very nearly to fill the anterior chamber, but could not be distinctly traced posteriorly to the iris. Lens of a pale brownish colour, and very soft. The vitreous humour was also quite liquid, and somewhat discoloured. The tunics of the eye generally seemed healthy. The cornea was most distinctly traceable throughout the melanotic mass, upon the cut section being somewhat opaque, but not at all thickened."

Dr. Bethune added that the progress of disease in this case was wholly contrary to his previous experience of melanosis of the eyeball. In the cases with which he had previously met (from ten to twenty), and several of which

he had published, the disease, as far as he can recollect, has apparently commenced in the *posterior* portion of the eye, and has thence advanced to the anterior. The reverse, as will be observed, was the case in this instance.

Want of Synchronism in the Ventricular Pulsations.—Dr. GOULD had observed an instance of this, occurring without discoverable organic disease, and also without functional disturbance of the heart. The three sounds attending the systole of the auricle and of the two ventricles, were distinct.

Purpura Hemorrhagica.—Dr. STORER related the case. Miss I——, a nurse at the Massachusetts General Hospital, who had been quite feeble for several weeks previously, was compelled to relinquish her duties early in July, and submit to treatment. Dr. S. found her extremely languid, with a sallow countenance, dry skin, and very feeble pulse; the gums were spongy, and the whole lining membrane of the mouth and throat was parched, and of an unhealthy, dusky hue; the breath was exceedingly offensive. She daily became more prostrated, complained of stiffness and soreness in her limbs, and, finally, inability to sit up in bed, for a moment even, without faintness. In about three weeks after her first confinement to her chamber, she died, at the residence of her mother, where she had been carried for the sake of a purer atmosphere. At her death, a hemorrhage took place from her mouth. Although Dr. S. had never been able to observe any spots of purpura, he considered this a case of that affection.

Dr. DURKEE remarked, that while visiting the hospital, a few days before the patient referred to came under medical treatment, she spoke to him of an eruption on her lower extremities; he examined the spots, and they proved to be *petechial*.

Dr. Storer observed that this fact settled the correctness of his diagnosis. He had been able to detect no such marks on the upper extremities, and was told by the patient none existed on any portion of her body. This patient was an invaluable nurse in the Institution to which she was attached; unwearied in the discharge of her duties—not willing ever to be thought unfit for work—and it is to this alone can be attributed her disinclination to conceal any of her symptoms.

September 13.—Pus within the Shaft of the Tibia—Trephining of the Bone—Cure of the Diseased Limb.—Dr. STRONG reported the case. A. Y., forty-two years of age, a shoemaker in winter and a farmer in summer, was attacked twenty-eight years ago, at the age of fourteen years, by a fever, dependent probably upon acute necrosis, a disease not uncommon in the northern parts of New England. Dr. S., when a pupil of Dr. NATHAN SMITH, observed many cases of it, and he believes that Dr. Smith, who resided many years in Hanover, N. H., was the first to describe the affection, and to discover the best remedy for it. The disease consists essentially, as it would seem, in inflammation of the periosteum, and of the lining membrane of the medullary cavity, and is attended by sympathetic fever; the severity of the latter being proportionate, ordinarily, to the extent of the local disease; matter next forms between the periosteum and the bone, and also within the medullary cavity. When left to itself, or only opened through the periosteum, a portion of bone, usually equal to the space occupied by the matter, dies; it is sometimes separated and thrown off, but more frequently is surrounded by new bone, through which openings exist and continue to discharge pus until the bone is broken up and taken away. Dr. Smith, in the acute cases, was in the habit of cutting

at once down to the bone, as soon as any matter was discovered; making the incision longitudinally, in the direction of the bone, and for an extent commensurate with the portion denuded of its periosteum. The next step in the operation was to open into the medullary cavity, either with a trephine or with a perforator made for the purpose; the openings to be made in one or more places, according to the extent of the denuded bone. Dr. Strong said he had often seen this operation done, and in no instance where matter did not issue from the medullary cavity, pouring out with each arterial pulsation. If the operation was performed at an early period of the disease, necrosis of the bone was prevented, and the patient was at once relieved; recovery being rapid.

In the case about to be reported, Dr. S. diagnosticated the existence of pus within the bone. The inflammation occupied the upper third of the tibia. The integuments had been once opened without perforating the bone, sometime previously, and pus had been discharged for more than four years, when the opening healed. Ever since that time the limb has been troublesome, especially in dull, easterly weather. Two years ago last midsummer, the patient injured his limb by jumping from a load of hay, since which accident it has gradually, but continuously, grown worse. Patient, however, kept about upon it until last February, when he took his bed, and was confined to it for the most part, his ability to leave it growing less and less, until the time when Dr. Strong first saw him, some five weeks ago; he could then only with great difficulty be removed from it. Not long after the above-named accident, he began to complain of a burning or scalding in the site of the old injury, accompanied by a throbbing sensation. About the same time, violent neuralgic pains attacked him, worse at night, and affecting nearly the entire body, accompanied by spasmodic action; during the paroxysms, the patient said he saw "balls of fire" accompanying the darting pains. The tongue was clean, very red, and rather dry, at times slightly coated about the edges; he was sleepless; without appetite; emaciated rapidly. Dr. S. saw him first on the 21st of August. All his symptoms were then at their height. The system was in a highly irritable condition; he was depressed in spirits; his pulse frequent; nothing afforded him any relief. He had changed his medical advisers several times, without benefit, and had now returned to his original physician, Dr. AMOS BATCHELDER, of Pelham, N. H., a very excellent practitioner. Several surgeons had seen the patient in consultation, and all, with the exception of Dr. Batchelder, had condemned his limb to amputation. The left leg was very much contracted on the thigh, and was immovable; there was fluid in the synovial cavity of the knee-joint; the tibia was enlarged throughout the whole of its upper third, to about three times its ordinary diameter; the disease occupying the whole cancellated structure of the head of the bone, and extending into its shaft; the skin was smooth, with but little if any redness. On the inner side of the tibia, not far from the longitudinal centre of the enlarged bone, was an old cicatrix over the spot where the opening had formerly been; there was but little tenderness over this spot; the pain was not confined to any one part, but extended throughout the whole leg. The medicinal applications, although sometimes covering the whole limb, were for the most part confined to the enlarged portion of the tibia. In consultation with the patient's attending physician, Dr. S. confidently expressed the opinion that pus was contained within the bone, and that probably dead bone was also inclosed within the enlarged portion of the tibia, and that by trephining the bone, and getting rid of the offending contents, life and limb might be saved. Without this operation, the patient would lose one or

the other, and perhaps both, as his system was fast being undermined. After this, the patient delayed for three weeks, consulting, in the mean time, several physicians and surgeons; was not relieved, and was advised to submit to amputation as the only effectual remedy. He now, however, decided to undergo the operation proposed by Dr. Strong, which consisted in making a longitudinal incision, beginning about one inch below the knee-joint, and carried through the old cicatrix, and farther down, about five inches in all, penetrating throughout to the bone. The periosteum was then peeled off from the bone, but with the greatest difficulty, owing to its excessive thickening, the thickness being from a quarter to a half inch, and the whole tissue very adherent to the bone. Spicula of bone extended into the diseased periosteal membrane; the bone was very rough. Next, a trephine, one inch in diameter, was applied over the old opening, and was carried down, by chipping off the sawed fragments, until it was wholly buried in the bone, and the medullary cavity not then reached, after going so deep. Being embarrassed by it, the trephine was removed, and a common perforator substituted, which, in a short time, plunged into a cavity, when pus immediately and freely issued, to the amount of from three to six ounces; its exit was not made at one rush, as from an opened abscess in the soft tissues, but gradually, and with the ventricular pulsations of the heart, until the quantity just mentioned had flowed from the aperture, before the wound was dressed. This discharge has continued freely, in greater or less quantity, to the present time; and, for the first few days, from four to eight ounces passed away daily. The opening was made partly into the cancellated structure; the bone was very vascular, bled freely, and was comparatively soft; the state of inflammation very marked. The operation gave immediate relief, all the old symptoms disappeared, and the patient has been rapidly recovering ever since; his general health improving with the banishment of the local disease.

October 6. Patient is able to ride out and visit his neighbours. Six or eight pieces of dead bone, varying in size from one-eighth to one-quarter of an inch, have been discharged from the wound. The use of the knee-joint is gradually being regained; the limb can be straightened voluntarily; the cure must soon be complete.

In default of *ether* at the time of operating, the patient was plied with tincture of opium and with spirit, until he was thoroughly intoxicated. He suffered no pain, and was not aware that the operation was being performed. The spirit was ejected from the stomach soon after the operation was completed; some irritation of the stomach followed, and the usual disagreeable sensations from taking a large dose of laudanum were experienced, but in less than twenty-four hours these had wholly passed away.

Retention of the Appetite in Typhoid Fever.—Dr. JACKSON mentioned an instance of this. He had never previously observed it in *typhoid* fever; in *typhus* it does, at times, occur. The case he alluded to was rapid in its progress, and severe in its character. In the course of ten days, delirium, subsultus tendinum, involuntary discharges, and coma had all been observed. Thirteen days from the commencement of the disease, some intelligence was manifested. From the sixteenth to the twentieth day, improvement was evident. The bowels were costive throughout the disease; laxatives were required two or three times. Unequivocal rose-spots were observed. The chief point of interest is the persistence of appetite through the entire course of the disease. The patient asked for meat, sausages, and pudding.

Foreign Body in the Oesophagus.—Dr. COALE was consulted for the removal of a cent from the throat of a child, who had swallowed it, partially, while lying on its back. The mother instantly suspended it by the heels, slapping its back, and also gave it mustard and water, with powerful emetic effect. No dislodgment of the coin was evident. Three or four days subsequently, pain being complained of, Dr. C., on examination, found the cent still lodged, about four inches down the oesophagus. The probang did not force it downwards. Dr. S. D. Townsend saw the patient in consultation. On the tenth day, Dr. C. passed a probang, the head of which came off (having been carelessly joined to the handle), and descended to keep the cent company! Dr. C. afterwards removed the cent by forceps. The bowels, which were perfectly regular previously to the accident, became confined under the use of a mucilaginous diet; there being only one discharge in three days.

Dr. J. M. WARREN inquired of Dr. Townsend, Sen. the result of certain similar cases treated by him at the hospital. Dr. T. said he had passed the probang successfully in these instances. He has not yet heard whether the coins have been passed from the bowels.

Dr. Warren mentioned a case in which he had advised delay, without any medicinal or surgical intervention, until the day following the accident, when the probang was to be used, if required. Six weeks afterwards, the cent, which had been swallowed, came away from the bowels, not at all acted upon by their secretions. Dr. W. added that coins, when swallowed, generally pass from the bowels in three or four days.

Dr. Coale referred to one case in which a cent came away in fifty-six hours.

Cotyledon Umbilicus in Epilepsy.—Dr. S. L. ABBOT mentioned an instance of the power of this remedy in arresting the attacks of epilepsy. He had administered it in the dose of five grains of the extract, night and morning, for eight months, with entire cessation of the fits during that period. The patient was a gentleman, upwards of fifty years old, who had been subject to the disorder for five or six years; the epileptic fits occurring, at the time the use of the remedy was commenced, as often as once in two or three weeks, with one or more attacks of epileptic vertigo daily. The vertigo, under the use of the remedy, diminished in severity, but not in frequency. At the end of eight months, the patient began to totter very much in his gait, with frequent "dropping turns," as if from his legs "giving way" under him, with only partial loss of consciousness. No convulsion, but a slight general tremor, with some rigidity of the limbs. A feeble, unexcited pulse, and no flush or heat of countenance. At this time, the use of the cotyledon umbilicus was discontinued, and a small quantity of phosphoretted oil was given, which was followed on the third day by a bad epileptic fit, and its use was consequently abandoned. Since that time, the epileptic attacks have occurred at intervals of three or four weeks, and the other morbid phenomena are of daily occurrence. Under these the powers of life appear to be gradually failing.

Dr. H. O. STONE referred to two cases in which the cotyledon umbilicus had been used with good effect. In one case there was an interval of one hundred days between the fits, after using the medicine a short time.

Dr. HOMANS asked if any other remedy had been used in this case, and if strict regimen had been observed. Dr. H. said that it is nearly always true that epileptics are great eaters. *Rigid diet* has always seemed to him the most effectual means in combating the disease. He does not, by trial, find the nitrate of silver or any other medicine answer his former expectations.

Dr. Abbot said that the patient was, so far as his strength permitted,

actively engaged in business, and extremely reluctant to curtail his allowance of food. He, however, abstained from fluid stimulants, and his diet was of the most simple character. Various remedies had been tried; *e. g.*, infusion of digitalis, iron, &c. The former was used for six weeks, with gradual decrease of the vertiginous attacks. Dr. A., however, feared to continue it longer.

[Dr. CHARLES BLAND RADCLIFFE, of London, in a recent and exceedingly well-written pamphlet, styled *Comments on Convulsive Diseases*, takes somewhat new ground in regard to the management of epilepsy. He believes it to be always a disease of *debility*, not of excited condition of system. That plethora enters in nowise into its production or prolongation. That epileptic and epileptoid convulsions are connected with a state of body "the very opposite of vascular activity." That delicacy, not vigour, *as the rule*, characterizes individuals affected with diseases termed convulsive. Dr. R. adds that sufficient reason exists to cause us to doubt "that venous congestion in the head and neck (so marked in epilepsy) is essentially connected with convulsion." With these views of the nature of this disease, the writer advises a treatment *almost exclusively tonic*. Bloodletting is not to be thought of. Purgatives, except when demanded by evidently obstructed bowels, are inadmissible. Iron, quinine, turpentine, and nitric ether are recommended; and, in a very decided manner, the use of a *generous diet* is particularly enjoined—instances of its efficacy being adduced—and the employment of *stimulants*, even, under proper regulations, is counselled. The author's position and arguments derive great support from physiological and pathological facts, of which more cognizance, in their relation to treatment, might advantageously be taken. Dr. Radcliffe's summary of treatment in epilepsy is, that "the essential indications require rest, a nutritious and generous diet, with warm bathing, and the most sedulous avoidance of all debilitating practices, and, in the more difficult cases, medicinal tonics and stimulants."

The high authority of Dr. Marshall Hall, in his late work on *Cerebral and Spinal Seizures*, goes for a rigid system of mental discipline, of *diet*, &c. The *acetate of strychnine*, in its *tonic* dose, is favourably mentioned by Dr. H.; the one-fiftieth part of a grain thrice a day.—SECRETARY.]

Fracture of the Ligament of the Patella treated without Bandages.—Dr. GOULD reported this case. A man, in attempting to reach the railroad cars, while in motion, ruptured the ligament of the right patella by his efforts in running. This occurred in August of last year, and Dr. G., not wishing to confine him too closely in the hot weather, tied a silk handkerchief around the foot, and had its lung up to the bedpost, thereby keeping the limb fully extended. No bandages were applied, except one above the patella for a short time. In six weeks, the man walked well, and in another week he was able to go to his occupation. He was an intelligent and manageable patient, who could be trusted to aid in the carrying out of such treatment.

Excision of a Portion of the Inferior Maxillary Nerve for the Relief of Neuralgic Pain.—Dr. PARKMAN excised a piece of the inferior maxillary nerve, about three weeks ago, at the hospital. The patient was a woman, forty years old, who had suffered neuralgia of the entire face for from twelve to thirteen years. The point of departure for the pain was from the right side of the lower lip. About one-eighth of an inch of the nerve was removed, with immediate and complete relief of the pain. Paralysis of sensation fol-

lowed the operation, and is nearly total over the right side of the lower lip. Slight sensation only is found when the part is pricked with a needle.

Cases of Occlusion of the Vagina. Dr. J. MASON WARREN.—*Occlusion after Labour.*—Mrs. M., thirty-five years old, applied to Dr. W. about a year since, with the following statement from her physician: "Mrs. M., some years since, immediately after giving birth to her first infant, was attacked with pleuritic inflammation, which resulted in hydrothorax. Her strength became greatly impaired, and oedema of the cellular membrane was quite general. While labouring under this low state of her general health, it was discovered that the mucous membrane of the vagina had begun to slough. Summoned to see her, I found this so much the case that the separation of the slough was easily effected with the forceps, and I was able to remove it readily by the scissors. The process of casting off the slough having been completed, a copious discharge of thin ill-conditioned pus flowed away, acrid enough to excoriate the labia and surrounding parts. Suitable bougies were provided and introduced, to prevent the contraction and adhesion of the surfaces of the vagina; but, so great was the sensitiveness of the parts, that, though warned of the consequences in neglecting their use, they were imperfectly used, or altogether dropped, so that the occlusion became almost complete. A devious and extremely small canal was found to exist, by which the catamenia have flowed away. In the efforts made to explore it, a very small probe was made to pass a short distance along the canal. No prolonged effort at dilatation has ever been attempted in her case, nor has she for years been subjected to medical examination.

"I should have remarked that the labour in giving birth to her infant was a very rapid one, and that the child was so small and delicate that it lived but a short time. The labour was conducted by a careful midwife, no physician being near, and no ground existed for believing that any injury whatever was sustained by the vagina in the passage of the child. Nothing unusual transpired to call the attention of her husband or attendants to the organs of generation. In the bad state of her constitution, under the dropsical tendency of her system, the irritation of the vagina, consequent on delivery, passed rapidly into a gangrenous state of the lining membrane."

Dr. W. said that he found the vagina, as above stated, almost completely occluded. On one side was a small, tortuous passage, into which a probe penetrated for a short distance, and could be felt for the space of an inch or more through the parietes of the vagina, by means of a finger introduced into the rectum. With this guide, and with a finger kept constantly in the intestine, a careful dissection was made in the direction of the uterus. Very shortly, all assistance from the fistulous passage was lost, and it was necessary to proceed without any guide. This was done with great caution, from fear of penetrating at the side of the uterus into the peritoneal cavity. In the course of two weeks, after a number of dissections, and the constant application of the prepared sponge, cut into a conical shape, and introduced so as to assist in dilatation, what appeared to be the os uteri was finally reached.

At this period the patient had occasion to leave town. Dr. W. saw her again at the end of a month. The use of the sponge tent had been persisted in, and, by a slight cutting operation, the vagina was restored to nearly its natural dimensions. Previous to her leaving town, the catamenial discharge came on freely, and with less suffering than for many years. She was advised to persevere in the means which had been used to prevent the contraction of the vagina.

Congenital Occlusion of the Vagina.—Miss P., fourteen years old, began to suffer, two years since, with pains in the lower part of the back and abdomen. These pains gradually assumed a periodical character, coming on at an interval of four weeks, and were so intense as to require alleviation by means of medicine.

A physician being consulted, suspected an obstruction of the vagina, and an examination confirmed his suspicions, showing this passage to be completely occluded. An incision was made through the solid obstruction which presented at that part, with the hopes of discovering a cavity containing the menstrual fluid; but the operation met with no success. From this time, the sufferings of the patient gradually increased, and at the menstrual periods, were so severe as to produce a degree of prostration which confined her for some days to her bed, and finally even threatened life.

When first seen by Dr. W., the external organs of generation were so sensitive as to cause great complaint from the patient on any attempt at an examination. The external labia were found to be well developed. The orifice of the urethra occupied its normal position, or was a little lower than natural. Below this, not the slightest depression indicated the orifice of the vagina. The finger, being introduced into the rectum, detected, at the distance of about two inches from the anus, a hard, globular tumour, the size of a billiard-ball. Before removing the finger from the rectum, a catheter was passed into the bladder, and this was at once felt by the finger in the rectum, in the median line, the coats of the bladder and rectum only intervening, for a distance of one or two inches—that is, as far as the above-mentioned tumour. At this point, the catheter could be made to pass on each side of the tumour, but was with difficulty detected in the rectum. Dr. W. had no doubt, from the result of the examination, that the tumour felt in the rectum was the upper part of the vagina and uterus distended by fluid, and the cause of the serious symptoms under which the patient laboured. An operation was therefore proposed, and at once, with the assistance of her physician, performed. Anæsthesia being induced, a transverse incision was made directly below the orifice of the urethra. With much caution, a dissection was now made between the rectum and the bladder, until, by cutting and separating the tissues by the fingers, the tumour described as felt in the rectum was reached, lying very deep, and affording but little opportunity for a fair examination. The depth at which it lay, and its apparent solidity, for a moment caused some embarrassment as to the proper course to be pursued, especially as one of the gentlemen present seemed convinced, from its hardness, that it could not contain a fluid. But, finally, Dr. W., being satisfied in his own mind that the tumour could be nothing else but what had been suspected, determined on puncturing it. The escape of the thick tarry fluid, which has been observed in one or two other cases before related to the Society, at once confirmed the truth of the diagnosis. The aperture was now enlarged so as to allow two fingers to pass freely up into the cavity containing the fluid, which was apparently the uterus and upper part of the vagina distended so as to form a single sac.

The patient, on recovering from the effects of etherization, declared herself entirely relieved from her previous state of suffering. The use of the prepared sponge, to prevent the closure of the passage, was advised, as also the occasional introduction of bougies, to maintain, if possible, the normal size of the canal.

Occlusion of the Vagina occurring soon after Marriage.—The patient was a widow, forty-five years of age. The account she gave was, that she was married

at an early age; that *les premières approches du mari* were so violent as to cause a severe inflammation of the vagina, which eventually terminated in the almost complete closure of the upper part of the canal. At the catamenial periods, much difficulty and suffering were experienced in the egress of the menstrual fluid, which was discharged slowly, and apparently by a circuitous route. She suffered from this cause until within three years, when that function ceased to be performed, but was replaced by a mucous secretion. Her health latterly has been poor, and she has been more or less troubled with pains in the back and loins, all of which she has attributed to the retention of fluids in the uterus.

On examination, Dr. W. detected an obstruction two inches from the orifice of the vagina, caused, apparently, by an adhesion of its parietes. With the aid of the speculum, a small aperture was observed on one side, into which a probe penetrated a short distance.

As the patient insisted on having an operation performed, Dr. W. consented to do it, although, at the same time, he informed her that it was very doubtful whether the obstruction was the cause of the symptoms, considering the present state of the functions of the uterus.

A director was forced into the passage, which had at first only admitted a probe. This was followed by a larger instrument; and, by proceeding gradually, it was shortly found possible to use the dressing forceps. By this means, the passage was finally enlarged so as to admit the little finger, when, by tearing and distending the parts, almost the full size of the original passage was restored, and the extremity of the os uteri exposed, although buried in the adjacent structures.

The caliber of the canal was maintained by the same means as had been resorted to in the preceding cases. The patient expressed herself much relieved by the operation, and, when seen a month afterwards, there had been no recurrence of the previous bad symptoms under which she had suffered.

Abortion without a suspicion on the part of the Mother of the existence of Pregnancy.—Case reported by Dr. STORER.—August 28. At 1 o'clock, this morning, Mrs. S., of Charlestown, was awakened by hemorrhage from the vagina. She was married the latter part of December last, but her catamenia have appeared regularly; she has never experienced the slightest nausea; her appetite has not been impaired; there has been no derangement whatever of the alimentary canal, nor perceptible enlargement of the abdomen.

Not having the slightest idea of her being pregnant, she was not a little alarmed, and aroused her husband, who at once called up her mother, with whom she resided. The mother had never thought her daughter pregnant, although constantly with her, and, at first, could not imagine the cause of the hemorrhage. But when pains supervened, and assumed a degree of regularity in their recurrence, she felt satisfied that her daughter was in labour, and Dr. S. was sent for. In an hour or two after the commencement of the pains, the foetus was expelled. It measured nine inches in length, and the umbilicus was half an inch from the centre of the body. Dr. S. supposed the mother to have been between four and five months pregnant—nearly five. Upon examining patient's breasts, they were found to be large, but she did not perceive any unusual fulness. The areolæ, however, exhibited those changes always so reliable; their colour was much deeper; their feel, velvety; and the glandular follicles much enlarged;—thus pointing out, not merely the pregnancy, but also its advancement.

In a medico-legal point of view, this case is interesting; inasmuch as, from

the rational signs of pregnancy, a foetus may be carried even to the time most women quicken, without the fact being suspected by the bearer, or any of her friends.

Placenta Prævia, with a Foot and the Funis presenting.—Dr. STORER reported the case. August 25, he visited, in consultation with Dr. CRANE, of East Boston, a woman in labour. Thirty-one hours previously, having advanced to the limit of her pregnancy, she was attacked with labour-pains, and about the same hour the membranes were ruptured. Dr. Crane saw her on the 24th inst. at 10 A. M., and, not finding his assistance required, he did not interfere. On the morning of the 25th, she commenced flowing; and, upon examining, per vaginam, Dr. C. found a portion of the placenta had been attached over the edge of the os uteri, but becoming separated, and the detachment extending somewhat beyond the os, hemorrhage had ensued. He also found the funis at the os uteri, and at its side, a foot.

After carefully examining the case, Dr. S. advised an immediate delivery for the following reasons: Although, at the present time, there is no hemorrhage, yet as a partial detachment of the placenta exists, bleeding may occur at any moment; and should it ensue in the absence of Dr. C., fatal consequences might follow.

The child is still living, as the foetal pulsations heard through the mother's abdomen testify.

There is a chance of saving the child—that chance is lessened by delay, owing to the fear of hemorrhage.

The woman is very anxious respecting her situation, and begs to be delivered.

Nothing can be gained by procrastination.

Dr. C. agreed with Dr. S., and requested him to deliver his patient. Passing his hand within the os uteri, he grasped the presenting part, the right foot, and very carefully and slowly made traction. Uterine pains immediately commenced, and, without anything peculiar occurring, the child was delivered to the head; at this stage of labour, although the face was applied to the sacrum, some little delay existed in the delivery of the head; it was withdrawn, however, by means of the fingers applied to the mouth.

The placenta was removed without difficulty, or any unusual hemorrhage; and beneath the portion which had been detached, adhered a coagulum about the size of an adult's fist.

The child breathed at considerable intervals of time, for six or eight minutes; and the heart beat quite forcibly for a longer time; but all efforts to revive it, permanently, failed.

Recto-Vaginal Fistula in former delivery. Secondary Hemorrhage.—Dr. STORER reported the case. On the 4th of August, he was called to attend upon Mrs. A., in labour with her second child.

On the 18th January, 1851, this woman was delivered of a still-child; she had been in labour six days when Dr. S. was called in consultation, and the child's head had been lying low down upon the perineum an indefinite period. Her pains had left her, and her child was dead. On account of the reluctance of her friends to have craniotomy performed, Dr. S. was compelled to use the forceps; the child was thus delivered, not, however, without an extensive laceration being produced of the soft parts of the mother, owing to their extreme rigidity. For quite a number of weeks she suffered great inconve-

nience in retaining the contents of the bowels, and was made mentally wretched.

Dr. J. MASON WARREN remedied the evil, in a great measure, by an operation. Patient recovered her health, the power of controlling her sphincter ani, and was now again in labour. Dr. S. feared the union between the parts would be destroyed by the passage of the child, and he watched the woman assiduously, carefully supporting the perineum during the entire period of the pressure upon the parts. After ten hours of natural labour, she gave birth to a female child, weighing eight and three-quarter pounds, without any injury being produced.

After the delivery of the child, a large hemorrhage ensued, proceeding, it was found, from beneath a detached portion of the placenta; that organ being attached throughout its greatest extent to the fundus of the uterus, and requiring some care, time, and effort to remove it.

Dr. S. observed that his patient convalesced as well as usual after confinement, until upon the 18th ult., *fourteen days* after her accouchement, when, while exerting herself, she had an attack of hemorrhage from the vagina, which again recurred on the 22d; a third bleeding taking place on the 25th, she became alarmed, and he was sent for. His patient was exceedingly feeble from loss of blood, and became more so from a continuance of the hemorrhage; and although nearly three weeks have elapsed since he was first called to prescribe, but four or five days have passed since he considered her out of danger; the bleeding rendering her perfectly anemic, resisting the administration of ergot, matico, Indian hemp, lead, and opium, &c. &c., the application of ice, externally, and passed into her womb—and, finally, yielding to injections into the womb of sulphate of alumina and sulphate of zinc in the proportion of ʒi each to a pint of water.

Dr. S. reported this case on account of the late period after the confinement at which the hemorrhage occurred. Dr. JAMES FERGUSON, in the *New York Journal of Medicine* for September, 1850, reports a case of secondary uterine hemorrhage taking place on the *thirteenth day* after delivery.

Secondary Hemorrhage after delivery.—Dr. PUTNAM had lately seen, in consultation, a severe case of secondary hemorrhage. The patient, feeble in health, was the mother of several children born at intervals of twenty months. In some of her labours, had more than the ordinary loss of blood. In the present confinement there was no hemorrhage, but the placenta was adherent and was extracted with difficulty. Was doing well for four days, when she awoke in the night with sudden, profuse flooding. She was much prostrated; faint, and frequently vomited; the pulse rapid and feeble. The treatment employed was introduction of ice, followed by plugging the vagina, careful bandaging, ergot, brandy, and laudanum. She rallied, and, for three days, was improving, when another flooding occurred, attributed by herself to mental emotion. After an interval of five days she had another hemorrhage equally sudden and prostrating, at times being nearly pulseless; but she ultimately recovered. One would suspect the presence of some portion of placenta, but no remnants were detected in the discharges. Dr. P. referred to a writer who had recorded several cases of secondary hemorrhage, and among them one as late as the twenty-seventh day. He considered it owing to a menorrhagic tendency.

Dr. STORER asked Dr. PUTNAM if he considered plugging the vagina a safe procedure in such a case.

Dr. P. said it would depend upon the amount of contractility of the uterus. In the present instance, the contraction was sufficiently firm.

Dr. Putnam also related a case of hemorrhage from retained placenta, that occurred at a late period after miscarriage. A lady of slender constitution miscarried at the fourth month without medical attendance. For nine weeks afterward she continued to flow moderately, but not enough to prevent her riding and walking with freedom. Very suddenly an excessive hemorrhage took place; she became faint and cold. The os uteri was soft, but not dilated enough to admit the finger. In addition to the usual stimulants, the vagina was carefully plugged with pieces of sponge. At the end of thirty-six hours she had so far rallied that the sponge could be removed, and with it the placenta, which had in the mean while been expelled into the vagina.

Dr. P. mentioned another case, in which, under similar circumstances, the placenta was retained thirteen weeks.

Dr. Putnam, at the next subsequent meeting, remarked that, when reporting the previous cases of secondary hemorrhage, he quoted some cases from Mr. Robertson, having reference to the period of its occurrence and its probable cause; he has since found among his notes another case which illustrates these points.

This was a first labour, in every respect natural. The mother nursed the child, and had no inconvenience, except, for the first four weeks, a sensation somewhat more than is usual, of "bearing down." The hemorrhage occurred *six weeks* after confinement. She had walked out the preceding day, was not fatigued; slept well at night. In the morning had copious discharges from the vagina of coagula, with liquid blood. This continued at intervals during the day. Dr. P. saw her in the evening. She was frequently faint; the pulse at times imperceptible. The uterus could be felt above the pubis; pressure there caused a feeling of "bearing down." The vagina was turgid, tender to the touch, and filled with coagula.

The hemorrhage was readily checked by the introduction of ice into the vagina. Various stimulants were administered, and, in the course of thirty-six hours, reaction came on, without further hemorrhage.

It may be a question whether this should not be considered an irregularity of menstruation;—if so, it confirms the opinion of Mr. Robertson, who, in the absence of more probable cause, was inclined to consider it allied to menorrhagia; the discharge being more copious on account of the greater size of the uterine vessels, and the greater readiness with which the uterine cavity admits of expansion.

Diagnostic Sign in Tubercular Meningitis.—Dr. PARKMAN's attention had been called by Dr. SLADE to what purports to be a diagnostic sign of tubercular meningitis; it was first announced by M. Trousseau, and consists in the appearance of a remarkable *red line*, remaining upon the skin of the forehead, or of the abdomen, after drawing the finger across it. A female patient of Dr. Parkman's, at the hospital, who had tubercular disease of the clavicle, was, when about to undergo an operation, seized with fatal illness, which Dr. P. diagnosticated as tubercular meningitis. In this case, Dr. Slade pointed out the peculiar red line spoken of above.

The following account was given by Dr. J. B. S. JACKSON, of a *malformation in an adult subject, otherwise well formed, consisting apparently of a fusion of two upper extremities*. There is one central index finger, and upon each side of it a middle, ring, and little finger, seven altogether, and

perfectly formed; the index being no larger than natural. The subject of this case was a German machinist, aged thirty-seven years; and the hand was not merely very useful in the way of his business, but gave him some advantages, he thought, in playing upon the piano, upon which he was a performer. The three upper fingers, supposing the limb to be laid extended in a state of semi-pronation, were used efficiently as a thumb to oppose the three others. Various observations were made upon the motions of the hand and fingers; and when at last the individual died, under the effects of a chronic diarrhoea, the body was sent to the dissecting-room. Dr. J. H. YORK, who had some claims upon the subject, having relinquished them in favour of the Society, a cast was first taken for the cabinet, to show the external appearances. The entire extremity was then removed, and subsequently injected, and was fully dissected by Dr. F. S. AINSWORTH. The dissection, when completed, was shown to the Society, and the specimen is now presented for the cabinet, with the following description:—

The malformation seems to consist of a fusion, by the radial edge, of two very imperfectly developed extremities.

Bones.—The phalanges and metacarpal bones are not remarkable. And so of the ten carpal bones, there being upon each side a pisiform, unciform, and scaphoid; and upon the median line one semilunar and one trapezoides; there being no trace of a thumb, each trapezium and naviculare is wanting. The length of the hand is about seven inches. In the forearm, which is eight and a half inches in length, there are two ulnæ, but no radius; the one that would be below, when the limb is in a state of semi-pronation, is well developed; but the other, though of equal size, is somewhat irregular, the olecranon process being prolonged considerably upwards. The humerus is ten inches in length, and has what must be considered as an inner condyle upon each side; also, upon the anterior face, and towards the perfect ulna, a tolerably well-developed process, which may be regarded as an outer condyle. The scapula is irregularly developed; the semilunar notch is deep and broad, almost dividing the bone across; the spine is low, so that the fossæ above and below can hardly be said to exist; with some other deviations. The left upper extremity being the one that is malformed, the right ulna is nearly ten inches in length, and the humerus thirteen inches.

Muscles.—The tendons of the latissimus dorsi, teres major and minor, subscapularis, infraspinatus, pectoralis major and minor, are shown in the preparation. There is no well-defined biceps, nor brachialis anticus. Coracobrachialis small. One triceps sufficiently developed, with its three heads, and inserted into the olecranon of the perfect ulna. A second triceps, however, exists, which is quite imperfectly developed; one head arises from just below the head of the humerus, and beneath the deltoid, which has been removed; and a second from the lower part of the humerus, inserted into the imperfect olecranon, but sends a tendon to the corresponding inner condyle, and receives a large slip from the other triceps: in structure, it is muscular at each extremity, and tendinous midway. A supernumerary slip of muscle arises with the long head of this second triceps, passes under the tendon of the pectoralis major, and is inserted into the lower third of the humerus. In the forearm, the muscles usually connected with the radius and thumb are of course wanting. The superficial flexor of the fingers arises from the inner condyle, corresponding to the perfect ulna; and sends a tendon to each finger, excepting the little finger of the imperfect side, also a slip from the tendon of the index finger to the deep-seated tendon of the same. No superficial flexor from the other internal condyle. Deep-seated flexor, with its tendons sufficiently dis-

ting, arising from both ulnæ, and from the interosseous membrane. Flexor ulnaris well developed on the perfect side, but on the other indistinct. Extensors of fingers very distinct; arose from the two ulnæ, and sent a tendon to each finger. To the single index finger there are sent two extensors; a very interesting fact in support of the general view that has been taken of this case. Quadratus quite well marked, and also the interossei.

Arteries.—The brachial divides at the lower end of the humerus into two ulnars; that which is sent to the perfect side being about one-fourth larger than the other. There is also an interosseous of full size. The radial, of course, is wanting. In the hand, each ulnar sends a branch to form the superficial arch for the three outer fingers, the index being supplied by the perfect ulnar; also another for the deep-seated arch, the two anastomosing freely.

Nerves.—The radial, which is quite small, enters the triceps muscle, and is lost in it. The ulnar of the perfect side is well developed, but the other is small. The median is large, and sends a branch to each finger, excepting the two little fingers.

Compound Fracture of the Humerus.—Dr. S. D. TOWNSEND showed the specimen, which he had lately removed from a patient, whose arm was crushed by a railroad car. The humerus was removed at the shoulder-joint by two incisions, commencing at each side of the acromion process, reaching to a point at about the insertion of the deltoid, forming a triangular flap, which was raised up, and the knife caused to sweep around the head of the bone, dividing the vessels, and making a posterior flap. The patient died eight days after the operation. A *post-mortem* examination showed comminuted fracture of the scapula.

Remarkable Case of Aneurism by Anastomosis.—Dr. J. MASON WARREN related the case. A gentleman, fifty years old, partially froze the lobe of his left ear, in 1818. This always afterwards remained larger than the opposite one; and, in fact, slowly increased in size, finally forming a distinct tumour, red on its surface, and having a powerful pulsation. About six months since it was found necessary to undertake some means to arrest its growth. For this purpose compression between two plates of metal was advised, and practised by his surgeon. Although this was done in the most careful and scientific way, yet the suffering became so severe that, after having persevered with it for a fortnight, it was found necessary to abandon its further application.

When the patient applied to Dr. W., it was with the full determination of having any operation done that might be thought expedient; the tumour having arrived at that condition wherein it was evident that, if an operation should not be successful in removing it completely, it must soon pass beyond the reach of surgery, spreading over the ear and taking possession of the face, as in the case cited by Dupuytren, in his *Leçons Orales*, which resisted numerous and formidable operations, performed by some of the most distinguished surgeons in Paris.

The appearance of the tumour at this time was as follows: The lobe of the left ear was occupied by a globular tumour, the size of a hen's egg. The surface was red, and covered by large veins running over it in all directions; the redness and swelling belonging to the tumour extended above, into the concha of the ear, and ran up for a short distance on its back part. In front,

it slightly encroached on the cheek. On taking it in the hand, it had a powerful pulsating motion, not that alone presented by the common erectile tumour, but added to this, what might be expected in an aneurism of a large artery, the carotid or subclavian, for instance. By manipulation, vessels of considerable size could be perceived running into it from the ear and face.

Dr. W. said that at first he was at a loss how to attack the disease, the danger of hemorrhage appearing to be great from any cutting operation, and if ligatures were used, the same danger was to be apprehended on the separation of the threads. A combination of the two was finally resorted to.

The patient being etherized with chloric ether, the tumour was dragged upon, so as to stretch the integuments as much as possible. A pair of screw forceps, similar to an enterotome, was now made to embrace the whole base of the tumour, about three inches in length, that is to say, the whole enlarged lobe of the ear, with a portion of the cartilage. This was tightly screwed up, so as completely to interrupt the course of the blood into it. A needle, threaded with a strong double ligature, was next passed behind the forceps, and the needle cut off, leaving the two threads. The tumour, now apparently effectually controlled, was cut away close to the forceps. It was, however, at once found, that on the tension of the parts being relieved, that portion of it towards the cheek had escaped from the grasp of the forceps, and an artery was exposed nearly as large as the external carotid. This was seized by an assistant with a toothed forceps, and a ligature was applied to it. The grasp of the forceps being now slowly relaxed, it was observed that the whole cut surface was disposed to bleed at every pore. Some large vessels bled violently, and were tied. To stop the bleeding from the other parts, it was finally found necessary to apply the ligature *en masse*, which was done by means of two double ligatures. In the subsequent management of the case, in which Dr. W. was much aided by Dr. Buckminster Brown, all means were used to prevent too high a degree of inflammatory action about the ligatures. The patient was kept quiet, a low diet enjoined, and a compress, constantly wet with cold water, was applied, and the patient very carefully watched. Once or twice blood started by the side of the ligatures, but was restrained by refrigerant applications. At the end of fourteen days the ligatures separated, leaving an exuberant granulating surface, upon which the nitrate of silver was freely used. On the twenty-third day, the wound was almost entirely healed,—and the neighbouring parts were in a perfectly healthy state, the effect of the inflammatory action having destroyed the enlarged capillary vessels which had extended into the concha of the ear and invaded the integuments on its posterior part.

Dr. W. stated that, in order to have extirpated all appearance of erectile tissue at the first operation, by the knife, it would have been necessary to sacrifice nearly half of the ear, and to leave the patient with a great deformity. In order to avoid this, he had removed the tumour, trusting to the effect of inflammation to destroy the small quantity of erectile tissue which ran from it into the adjacent parts.

The appearance of the tumour after removal was quite interesting. The main portion of it was composed of a spongy tissue, similar to that observed in a case of which Dr. W. had previously published an account, where an enormous erectile tumour of the lower lip was removed, after the previous ligation of both carotid arteries. In the present specimen, this erectile tissue inclosed an aneurismal cavity, apparently the expansion of the largest of the vessels described above, which were tied when the tumour was removed. From this cavity, branches extended in all directions, which finally could be

traced terminating in the cellular tissue which covered the periphery of the mass.

Fissure of the Palate.—Dr. J. MASON WARREN showed a case of instruments containing those most essential in the operation for fissure of the palate. He stated that he had always had much difficulty in finding any forceps which would effectually seize and control the edges of the fissure during the section of the muscles and subsequent removal of its margin. With the common double-hooked forceps, too small a portion of the soft parts is seized, and, as soon as there is any resistance on the part of the muscles, it is torn away. There is also a difficulty in getting one branch of the forceps behind the palate, as the tendency of that organ is generally rather to hang backwards than forwards. These objections to the common forceps he had remedied by having a pair constructed with a double curve—one of the curves of the instrument being anterior, the other lateral, and the posterior jaw of the forceps being a little longer than the other. By means of this instrument, which is provided with double teeth, the smallest portion of the edge of the fissure can be seized, and the part held tense while the muscles are cut and the edges pared. Dr. W. said that he usually divides the muscles with a powerful pair of scissors, curved on the flat side, cutting freely wherever he finds resistance. Sometimes one set of muscles requires division, at others another set. When this is effected, the soft parts implicated in the fissured palate hang loose, and the subsequent steps of the operation can be prosecuted with ease. To show the effect of this division, he stated that in one instance, where the operation had been twice repeated on account of want of union, notwithstanding the loss of substance from the edges previous to the third operation, which was successful, it was observed that they lay in perfect contact, so that, if time had allowed, the union might have been produced by the simple application of caustic to the angle of the fissure. The voice, previous to the final operation, had much improved.

Dr. W. stated that he had latterly performed five operations, in two of which the hard palate was badly fissured, and all had proved successful. In one of these, where the fissure extended through the hard palate and alveolus, the soft palate and a portion of the mucous membrane which was peeled off from the palatine arch, united. The aperture which remained in the bones was covered with a gold plate, very perfectly fitted by an experienced dentist, and the voice was much improved.

In regard to the result of these operations, Dr. W. said that he had lately seen a young lady on whom he had operated some years since, and the power of speech was quite restored, so that she enunciated with great distinctness. In almost every case the speech improved, the deglutition was easier, and the posterior fauces were less liable to inflammatory attacks, and were relieved from the unpleasant state of dryness caused by their unprotected condition.

Cut-throat; Complete Division of the Cricoid Cartilage and Oesophagus.—Dr. COTTING, of Roxbury, sent a full account of the case, of which the following is an abstract: Mrs. —, æt. fifty-six, attempted, about four years ago, to cut her throat, being then insane. Recovered immediately afterwards. Her mother also was insane, and a sister had committed suicide by cutting her throat. About a year ago, Mrs. — again became insane, and had recently made preparations to hang herself. A few days before the fatal event she returned from an insane asylum.

Between 4 and 5 A. M., on the 4th of September, her husband was awoke by hearing a knocking below, and, on descending into the cellar, found his wife seated upon the floor, by the side of a wash-tub. On being spoken to, she pointed to her neck, about which she had wound a damp towel; and, her condition being then discovered, she was led up stairs, to the second story, and placed upon a bed. Nearly a quart of blood was found in the tub, but there was not the least bleeding from the wound until examined by the physician who was first called. The instrument used was a very dull carving-knife.

About 6½ A. M., Dr. C. saw her, and found a large, gaping, mangled wound, rather more than three inches from side to side, and rather less from above downwards. Lower half of the thyroid cartilage exposed. Skin and integument separated from the trachea, from one to two inches, and extensively retracted. At each extremity of the principal incision were smaller ones, as from subsequent cuts. Both mastoid muscles deeply cut, and the right in at least two places. Cricoid cartilage (or, as was supposed at the time, the trachea) and œsophagus completely severed and widely separated, the wound extending quite to the spinal muscles; yet the carotids were not injured, though they were seen beating, and the right might have been tied without any further dissection. Wound filled with blood, but the flow was effectually restrained by a single ligature; its entrance into the trachea having been prevented by holding up the tube with a hook. The patient appeared depressed and submissive. Pulse feeble, and not over 60.

A gum-elastic tube, one-third of an inch in diameter, was first passed through the mouth, and downwards, through the œsophagus, until it protruded from the wound. The lower and deeply-retracted portion of the œsophagus having then been drawn up, and brought over the extremity of the tube, the two portions were secured, and in perfect contact, by three stitches, one on each side and one in front; the ligatures being carried by a curved needle in Charrière's needle-holder. The tube was then carried on to the stomach and left there. The larynx and trachea were next brought together by strong sutures, one on each side. The integuments were also brought together by two stitches, leaving a sufficient opening for the patient to breathe freely through the wound. Lastly, the head was brought forward; and the chest was supported in a semi-reclined position.

During all this time, the patient was very tractable, and apparently suffered but little. Slight spasmodic action, and scarcely any cough. Pulse rose to about 100. After the dressing, she made signs for drink, and about 3ij of milk and water were injected through the tube. During the forenoon there was "considerable rattling in the throat," as the attendants reported, and a slight discharge of mucus from the wound. Some restlessness. Increasing pain and uneasiness in the chest, moving from above downwards, and particularly towards the left side. A little water, given by an attendant, escaped immediately through the wound. At 1 P. M., Dr. C. saw the patient, and gave 3ij of milk and water through the tube.

Throughout the day there was a gradual sinking, with one or two slight flushes of fever. At nightfall, the pulse was very feeble, but never exceeded 100. Wound dry and pale, without any appearance of inflammation. Restlessness increased. Generally appeared sane. In the night, however, she attempted to get out of bed, but, after taking forty drops of laudanum, through the tube, she slept for about an hour. Retained her consciousness till the last, and died about 2 A. M.

On dissection, the cellular tissue between the œsophagus and the spine,

from the incision down to the diaphragm, was found to be perfectly infiltrated with thin pus of a light yellowish colour, but this did not extend laterally nor above the incision. Carotid artery, jugular vein, and par vagum, upon each side, uninjured, though the sheath was infiltrated with blood. Oesophagus gaping posteriorly, but, otherwise, the two portions were in perfect contact, as above described. The parts were shown to the Society, with the tube and the knife.

Dr. Cotting remarked upon the following points as interesting in this case: The number of incisions, the amount of injury done, and the narrow escape of the great vessels. The instrument used. The self-possession during and after the deed. The cause of death, as shown by dissection.

Dr. STEDMAN spoke of the evident great danger attending the premature discharge of inmates of an insane asylum. Cases of suicide in such persons are exceedingly frequent. Physicians should discourage such a course when asked for advice by the friends of patients in reference to their exit.

Dr. GOULD related two cases of cutting the throat. In the first, the sheath of one carotid was opened; the other was not wounded. The patient lived from three to four weeks, and died suddenly, while drawing his shirt over his head, being suffocated. In the second case, Dr. G. witnessed the suicidal act. A young man severed the trachea with a penknife. When Dr. G. reached him, he fell, and was dead in two or three minutes, turning purple in the face. The jury of inquest, among whom were some medical men, returned a verdict of death by bleeding from wounds inflicted by a penknife; implying death by *amount* of the hemorrhage; whereas Dr. G. thinks it was by the *mode* of the bleeding—the lungs being filled with blood, and suffocation ensuing.

Dr. J. M. WARREN remarked the rarity of *instant* death in these cases. He had never seen the carotid artery or the jugular vein divided in such attempts, and he remembered no fatal case except the one just related by Dr. Gould.

Dr. HAYWARD, Sen., never saw an instantly fatal case: He thinks the lingual artery is the one most commonly divided. Dr. H. avoids immediate closure of the wound by suture; there is greater danger of suffocation.

Dr. J. B. S. JACKSON referred to two cases of *immediate* death consequent on cutting the throat. In reference to Dr. Cotting's case, he remarked the probable influence of the inflammation of the cellular tissue, which had supervened in so short a time, with formation of pus. This may have had something to do with the production of the fatal result.

Dr. HOMANS had seen several cases. In one, death was *instantaneous*. A razor was used, severing the left carotid. In another, the carotids were untouched, but death followed in a few minutes.

Dr. J. M. WARREN said that, in the greater number of cases, a razor is the instrument used, and the throat is cut *while the head is thrown backwards*. The large vessels are thus rarely reached, much protection being afforded by the muscles of the neck. Generally, patients are discovered in time to prevent fatal hemorrhage.

Dr. HOMANS related the case of a man, forty years of age, who had made three unsuccessful attempts to take his own life by cutting the throat. He now has a fistulous opening into the trachea.

Dr. BIGELOW, Sen., mentioned an instance. A man, in a sudden fit of raving delirium, leaped out of a chamber-window, through the glass. Afterwards, he deliberately cut his throat with a razor, standing before a looking-glass, and resisting the efforts of his wife to prevent the act. He immediately

fell, bleeding copiously. Recovering from the consequent syncopie state, he violently opposed those who endeavored to dress the wound; but, on being assured that he could not recover, he became quiet. Collapse came on, and he died in the course of the same day.

Dr. J. M. WARREN remarked that, very probably, if this patient had not been so strongly opposed in the first place, the wound might not have proved fatal.

Chronic Ulcer of the Leg; Amputation; Fatty Degeneration of the Muscles.—Dr. J. B. S. JACKSON showed the limb, removed by Dr. S. D. TOWNSEND, on Saturday last, at the Hospital. The patient is a man of sixty years; at the age of twenty-four, he cut the knee-joint open with a broad-axe; confinement to bed for four months followed the accident; abscesses forming, with threatened loss of the limb; the joint finally became ankylosed; the limb in a straight position. A few years subsequently the ulcer commenced, and has continued till this time, about thirty years in all, and was very extensive at the period of amputation.

There is complete *fatty transformation* of almost the whole of the *gastrocnemii* muscles. In the integument near the margin of the ulcer were found several small, thin plates of bone. The bones of the leg were enlarged and rough, as is usual in old ulcers.

October 11.—*Peculiarity in Dentition.*—Dr. COALE related an instance of conservation of the first teeth to adult age; the subject being the mother of a child now under his care; two other individuals of the same family present the same peculiarity. In another patient, a young lady, the two eye-teeth and two stomach-teeth are all that exist; the first teeth having been shed, they were never replaced, except by the above four.

Tumour of the Cervix Uteri; Removal by Caustic Potash.—Dr. PUTNAM reported the case. Two months since, the tumour projected an inch from the cervix uteri, and was of the size of a large horse-chestnut; much hemorrhage at times; always greater at menstrual periods. Caustic potash removed the growth, entirely. In another similar case, the tumour nearly filled the vagina, and under the same treatment is now disappearing. Dr. P. remarked that the use of this caustic had been, by some, considered dangerous; likely to induce peritoneal inflammation. Dr. SIMPSON, of Edinburgh, states that he had never noticed this effect to follow the use of the *potash*, whereas he had observed it after the *actual cautery*.

The precaution of using *vinegar* with the potash was insisted on by Dr. P. Dr. CHANNING spoke of the *very free* employment of the caustic potash in disease about the neck and mouth of the uterus, which he had lately witnessed in Europe. No pain is felt by the patient; the caustic is introduced through the canal of the speculum vaginae. Dr. C. exhibited to the Society the instrument used by Dr. SIMPSON, of Edinburgh, for applying the above caustic; vinegar is always employed in conjunction. Dr. Simpson's instruments for division of the cervix uteri, for the removal of uterine polypi, and for the application of the sponge-tent, were also shown by Dr. C.

Fibro-Plastic Tumour of the Neck.—Dr. HENRY J. BIGELOW showed this, removed from a boy of ten years; it had not the characteristics of the common fibro-plastic tumour when externally examined; it was smooth; very elastic; movable under the skin; not lobulated.

When one year old, this boy had two or three small bunches under the ear; these subsequently fused into the tumour now removed. When first examined, there was an inflamed gland just beside it, and it was suggested by some medical gentlemen who then saw the patient, that the tumour itself might be a gland chronically inflamed. It was cut down upon and very easily slipped out; an abscess formed in the wound; the tumour itself is fibro-plastic, of the softer kind; resembling isinglass in consistence, and is opaline in aspect. Dr. B. referred to a case in which a similar tumour was recurrent after removal. A drawing of the entire tumour, and another of a section thereof, both finely coloured, were exhibited by Dr. B., in conjunction with delineations, by himself, of the microscopic appearances; the cells observed were regular in their form, and had small nuclei.

Destructive Disease of the Nose, Larynx, and Trachea; with the Specimens, and a cast of the Face, &c.—The account of this case was communicated to the Society by Dr. J. B. S. JACKSON, who received it from Dr. EDWIN LEIGH, of Townsend.

The patient was a girl, nineteen years of age; six years ago she was troubled with earache; the cervical glands were occasionally much enlarged; at times there were large swellings under the tongue, which would open and discharge matter. Subsequently her breath became extremely offensive. She reported herself to be continually "*getting a new cold in her head*;" she would sneeze, with accompanying discharge from the nostrils, and the tears would overflow, as in cases of obstructed lachrymal duct.

About two years since, while "*picking her nose with a pin*," she was surprised to find that its head passed entirely through the septum nasi; she then became aware, for the first time, of the existence of ulceration of the nares. Previously to this, and about the time her breath became disagreeable, the voice began to be affected. The ulceration progressed (in spite of, or aided by various treatment), involving not only the mucous membrane, but also the cartilaginous and bony parts of the septum, until about eight months since, when it healed, as is shown in the cast. The posterior wall of the pharynx presented a whitish, fibrous, irregular, cicatrix-like aspect; the velum palati and the uvula were gone; the posterior opening of the nares had assumed a form nearly circular. Within the last two months there has been no appearance of active disease in this region. The patient's respiration has been difficult for a year or more. About one year previous to last January, she lost her voice entirely; since that time she has regained a hoarse, rushing, unnatural sound, half distinct voice, half whisper; hardly entitled to the name of voice. Dr. Leigh was first applied to by her in June last, when she desired a *cough syrup*; no very particular inquiries were made, as she did not ask for advice, but Dr. L. noticed the peculiar sound substituted for the natural voice, and the rough, noisy respiration, such as is produced by partially closing the glottis when we whisper; her inspirations and expirations were remarkably long and deep. Two months since she again applied, and for advice; her abdomen was very much enlarged; there was abundant ascitic collection, which had supervened imperceptibly, and was noticed only one week previous to her second application; within a few days it had very rapidly increased, unattended by pain or tenderness. On examining the patient, not the least sign of puberty was apparent; a great enlargement of the base of the thorax, as compared with its apex, was not remarked until subsequently, from its apparent connection with the ascites. In about a fortnight the ascites disappeared, under the administration of hydragogue cathartics.

In September, the patient sent for *cough syrup*, and soon after this Dr. L. was summoned in the night to see her suffering great dyspnœa and inability "to raise," as she termed it. Relief was afforded by an emetic; since then, dyspnœa has been frequent, with occasional suffocative access, relieved as soon as she could (to use her own expression) "loosen the phlegm." The sputa were purulent. The disease, which had already destroyed the nares, was so manifestly progressing in the trachea, that Dr. L. did not encourage her friends in reference to her recovery, even should it happen that the local disease should cease; no doubt existing in his mind, that, in such event, the cicatrices, in their contraction, would augment the dyspnœa; the danger was, therefore, fully announced to the friends.

Thus far she had complained of nothing but dyspnœa; there was no soreness or pain in the nares or fauces; no pain in the chest or hypochondriac regions. On Tuesday morning last, Dr. L. was called in haste; he found his patient dead on his arrival. She had appeared more comfortable than usual the previous evening; had rested well in the night, coughing but once or twice; a large quantity of muco-purulent matter had thus collected. At 3 o'clock A. M. she knocked on the wall (as was her habit when an attack of dyspnœa came on), and an instant afterwards she was found standing at her bedside, struggling for breath; she did not breathe fairly afterwards, being unable to inspire; the accumulated mucus and pus had suffocated her.

On dissection, there was found almost continuous ulceration from the glottis to the bifurcation of the trachea. The disease was in different parts more or less acute, the posterior surface being mostly affected. There was also distinct evidence of previously existing disease; the cicatrices that had resulted from former ulceration being traversed by a curious interlacement of whitish, shining fibres, and the cavity of the larynx being almost divided by a broad, thin, glistening septum which ran obliquely across it. At one part, the contraction of the passage that resulted from the development of this fibrous tissue was such that a goosequill would hardly have passed. The general appearance of the surface was quite different from that of common ulceration of the air-passages; there was also a peculiar relaxation or bagging out of the trachea posteriorly at certain parts; some of the rings were denuded; no tubercular deposit. In the chest there was found pneumonia, with pleural effusion, but no tubercles. The liver was a large, shapeless mass, almost completely adherent to the neighbouring parts, and nearly filled with a peculiar form of tubercular deposit; much of it being opaque, yellowish, and cheesy in appearance, though generally having almost a scirrhus density. Spleen much enlarged; eight by five and a half inches; uterus most remarkably undeveloped; peritoneum much discoloured; in its cavity were a few pints of serum.

A cast of the face, showing the loss of the nose, also the larynx, trachea, and a portion of the liver, sent by Dr. L. with the history of the case, were exhibited to the Society.

Dr. Jackson suggested that this disease might, perhaps, be considered as a form of lupus, affecting the mucous membranes primarily, instead of secondarily, as it sometimes does; he had met with a somewhat similar case several years ago, in a little girl. He remarked on the extensive tubercular affection of the liver when the lungs were quite free from this disease, and on the extreme rarity of this form and amount of disease of the liver under any circumstances; the fact of the deposit being tubercular was not merely apparent to the naked eye, but had been proved microscopically by Dr. Bacon, so far as it could be. The disease of the liver probably followed long after that of the

mucous membranes. The enlargement of the spleen, as a consequence of the obstruction that must have existed in the portal circulation, is interesting in connection with what is occasionally observed in the case of granulated liver.

Monstrosity.—Dr. JACKSON exhibited a six months' fœtus, which he had received from Dr. Z. B. ADAMS, and in which the contents of the abdomen protruded, forming a large mass or tumour, covered by a thin membrane, and adhering broadly and intimately to the placenta. The umbilical vein, which was, of course, very short, ran along the surface of the mass, and entered the liver upon its convex face. The cuticle was extensively separated, and death had probably occurred about three weeks before delivery; the organs of the abdomen were, therefore, very soft, and being also universally and very closely adherent, no proper dissection could be made. The liver appeared to consist of a single lobe; bladder very large, the urethra being long but very small; no genital organs found; externally, something like labia on each side of the urethra; no anus. The pelvis was very much malformed; the ossa innominata being imperfectly developed, situated quite behind the spine, and disconnected in front. Dr. J. remarked that he had seen several cases of protrusion of the contents of the abdomen, but never before one in which there was an adhesion to the placenta.

Extensive Fracture of the Spinal Column; Complete Division of the Cord; Life continuing two months.—Dr. PARKMAN presented the specimen for the Society's cabinet. The principal fracture was through the body of the fifth dorsal vertebra, and, the bodies of the third and fourth being separated from their laminae, were shot in front of the sixth and seventh. The displaced bones were firmly ossified in their new situations. The specimen was sawn through perpendicularly, and the division of the cord was seen to be complete. The symptoms were those common to these cases. The point of interest was the long continuance of life under these circumstances. Dr. P. stated that death usually occurs before the expiration of the fourth week.

Pulmonary Disease of doubtful nature; at first supposed to be "Acute Phthisis."—Dr. BOWDITCH presented a portion of lung containing, apparently, miliary tubercles, taken from a man who had died with some of the symptoms of *acute phthisis*; and in whom both lungs were found studded with substances similar to those seen in the specimen presented to the Society. Dr. B. considered it as presenting, to the naked eye, all the appearances of miliary tubercles as distinctly as he had ever seen them. He examined them microscopically, with Dr. BACON, for the purpose of seeing the peculiar cells of tubercle, but, to his surprise, none could be discovered. Dr. B. asked the opinion of the members upon the appearance of the specimen, and requested Dr. WILLIAMS to give an account of the case, and Drs. BACON and DURKEE to state the microscopic results obtained by them.

Dr. WILLIAMS gave the following as the chief facts in the case: The patient was a journeyman printer, aged twenty-three. On the 6th inst., when in apparent good health, was aroused from sleep by pulmonary hemorrhage. During the five succeeding days he had several attacks of hæmoptysis, and on the 9th, a considerable hemorrhage from the bladder. He was apparently recovering from the effects of these, when the respiration, which previously had been unembarrassed and without marked abnormal auscultatory phenomena, became oppressed. Crepitation began to be heard in the right lung, afterward extending to the left, and followed by mucous râle. The expecto-

ration consisted almost wholly of frothy mucus. The chest was everywhere resonant on percussion. At the autopsy, on the 24th, the resonance was explained by the existence of vesicular and interlobular emphysema. Both lungs were filled with small globular masses, apparently miliary tubercles.

Dr. BACON stated that, on a microscopic examination, he was satisfied there was no tubercular cell to be found; that there were many inflammation corpuscles, and certain cells looking somewhat like those of encephaloid matter. On this latter point, however, he could not speak definitely.

Dr. DURKEE agreed with Dr. Bacon upon the non-existence of tubercle, and also upon the presence of inflammation corpuscles.

Drs. JOHN WARE and J. B. S. JACKSON considered the specimen, presented by Dr. Bowditch, to have all the common characters of miliary tubercle.

Dr. BOWDITCH thought the case interesting, as showing the importance of the microscope. He asked if it be possible that most cases of so-called acute phthisis, are, in reality, only simple inflammation of the vesicles? Finally, Dr. B. suggested that the case might be one of those called by Rokitansky *vesicular pneumonia*. (*Pathological Anatomy*: Sydenham Society Edition, vol. iv. p. 83.)

[The correctness of the microscope, as a means of diagnosis, is in question, in this case. If the granulations or bodies observed *were* tubercular, upon the grounds of evidence hitherto universally received as satisfactory, then either the microscope is not to be relied upon, finding no proper tubercular cell, or the said grounds of evidence must be renounced. It is more according to reason to consider the case, as Dr. B. has suggested, "vesicular pneumonia;" especially as Rokitansky asserts, that the "product of such inflammation, under certain conditions, partakes of the nature of tuberculous matter;"—but such *partaking* does not necessitate the discovery of the cell of tubercle by the microscope; that discovery would at least be doubtful, if not unlikely; yet the naked eye might readily pronounce these depositions tubercular granulations; hence, indeed, "the importance of the microscope" is most apparent.—SECRETARY.]

ART. V.—*Observations on the Use of Potash in the Treatment of Scurvy; with Cases.* By WILLIAM A. HAMMOND, M. D., Assist. Surg. U. S. Army.

HITHERTO, in the treatment of scurvy, little reliance has been placed by physicians in medicines, strictly so called. Fresh vegetables, lime-juice, &c., have been regarded as indispensable to the cure of this disease; and in situations where these articles could not be obtained, the unfortunate patient has generally lingered out a miserable existence till relieved from his sufferings by death.

The researches of animal chemistry have, at length, however, thrown some light upon the pathology of scurvy; and if future observers confirm the results derived from the following cases, it will not be the least boon which that science has conferred upon the practice of medicine.

New Mexico, where the following cases occurred, presents to the physician a wide field for the observation of scurvy. During eight months of the year, it is exceedingly prevalent among the troops stationed in this territory, and from the scant vegetation of the country, it is impossible to obtain those vegetables generally esteemed most beneficial in the treatment of the disease under consideration. Perhaps, however, I saw less of scurvy than any medical officer stationed in New Mexico. There did not *originate* among the troops serving at the post with me more than four or five cases, out of twelve admitted into the hospital, and those were generally of a mild nature. This immunity from the disease I ascribe to the fact, that the small stream which flows past the post (the water of which was used by the troops) contains potash in quite an appreciable quantity. From one of the springs situated among the mountains, which supply the main stream, I obtained very satisfactory evidence of the existence of potash in considerable abundance, a large precipitate of the bi-tartrate being thrown down by a solution of tartaric acid.

A small portion of some salt of potash (say the bi-tartrate, as the most agreeable), issued to the troops as a component part of the ration, would, I am confident, entirely prevent the occurrence of this affection among them.

The cases here presented are selected from about a dozen others as being those in which the disease was farther advanced before being placed under treatment.

CASE I.—William Henry, a private in company "K," 2d U. S. dragoons, admitted in hospital at Cebolleta, New Mexico, January 2, 1850, with scorbutus. Has been on detached service to Santa Fé, and while there became affected. Countenance sallow and bloated, breath extremely fetid, and gums exceedingly tender, bleeding profusely upon the slightest touch. Legs and thighs covered with the characteristic livid spots; stiffness of the knee and ankle-joints, and slight oedema of the feet. Ordered, potass. carb. grs. v, ter in die, and sol. aluminis, for mouth.

January 3. Much improved; continued medicines, 4th, 5th, 6th, and 7th; continued to improve; ordered medicines as before.

8th. Gums hard and firm; maculæ on legs and thighs entirely gone; complexion clear, and general health restored. Omit medicine.

9th. Discharged hospital, cured.

CASE II.—Augustus Miller, private 2d dragoons. Admitted into hospital May 26, 1850. Has been affected with scurvy for three weeks, at Albuquerque, New Mexico, and has been under treatment for it. Does not know what was given him. Transferred with his company to this post May 25, 1850. Says he feels a little better since his arrival here. Has some pain in right leg, at seat of a fracture which occurred some years since. Maculæ on legs and thighs very abundant, and two or three large extravasations of blood about the ankle-joints of each leg. Bowels regular. Ordered potass. carb. grs. v, ter in die.

28th. Spots on lower extremities disappearing; skin over fracture livid in appearance, and slight motion can be perceived at the fractured part. Continued medicine as above.

29th. Improving. Pain in leg much less. Motion of fractured parts slightly

perceptible. Extravasation fading. Gums firm, and healthy in appearance. Committed some indiscretion in his diet to-day, in consequence of which he became affected with dysentery, which required very active treatment. Potass. carb. was omitted on the 31st, and on June 1st all signs of scurvy had disappeared. He is much debilitated from the effect of the dysentery, which still continues.

June 7. Convalescent. Continued to gain strength, and on the 12th was discharged hospital, and returned to duty.

CASE III.—Rafael Garcia, a Mexican, has been affected with scurvy for a month or more at Belin, New Mexico, where he has been on a visit to his friends. First noticed the disease at that place. Returned to this village June 5, 1850. I first saw him on the 7th. Gums exceedingly tender and spongy; teeth very loose, and sore to the touch. Has several large extravasations of blood on his legs, and myriads of the characteristic spots. On the anterior surface of the left leg is an ulcer three inches in diameter, of a pale, indolent appearance; knees stiff, flexed on the thigh, and very painful on any attempt to extend them. Ordered potass. bi-tart. $\mathfrak{z}\text{j}$, ter in die. This medicine was continued for two weeks, at the end of which time all signs of scurvy had disappeared, with the exception of the stiffness of the knees. By friction and careful passive motion for a week, the free use of these joints was completely restored. The ulcer of the leg healed perfectly without the use of any local application but ung. simp.

These cases are, I conceive, sufficient to prove the benefit to be derived from the use of the salts of potash in the treatment of scurvy. Others could be adduced; but as they are generally similar to the above in all essential particulars, I have not thought it necessary to introduce them here. In regard to the most eligible combination of potash, I am inclined to think the bitartrate preferable. It is more generally relished by patients, and, independently of this advantage, I think its purgative and diuretic properties beneficial. Both this and the carbonate, however, becoming exhausted at the post, I administered several other salts of the same article, both separately and with citric acid, without, however, perceiving that the latter article at all accelerated the cure.

No vegetables were given to the patients, for the simple reason that they could not be procured. They certainly would have proved powerful adjuncts to the potash in the treatment of the disease; but from the arid nature of the soil of the country, it is impossible to obtain them, even when in season, in sufficient quantities for the use of the sick alone.

In situations where the water has not a chemical constitution resembling that of Cebolleta, I should think it expedient to increase the quantity of potash given at each dose considerably over that indicated by the above cases. I did not, however, find it necessary to administer to any over two drachms of the bicarbonate thrice daily, and this quantity was given but to one patient.

In all, twelve cases of scurvy were treated with the salts of potash. Of these, four originated at the post, the remainder in different parts of the territory. All recovered perfectly, and in no case did lameness or other deformity

remain. The minimum period of treatment was three days, the maximum twenty-one days, the average nine days and six-tenths.

In regard to the *modus operandi* of potash in scurvy, I think the hypothesis of Dr. Garrod, of London (to whom I am indebted for the idea of its curative properties), correct. He regards the disease as depending upon a deficiency of potash in the blood, and considers it essential to the perfect nutrition of the muscular fibre.* The urine of each patient whose case is here related, as also that of all in whom it was examined, exhibited, before treatment, a total absence of potash, and I noticed that, as this substance appeared in the urine, amendment commenced.

The action of this remedy must be seen, in order to be properly appreciated. The return of strength to the body, cheerfulness to the mind, and the speedy disappearance of all symptoms of the disease which ensue so quickly upon its administration, liken its influence more to that of a charm than aught else.

The importance of the discovery of the curative properties of potash in the treatment of scurvy cannot be too highly estimated. In our own country, especially, will it prove a most valuable acquisition. Scurvy has been the scourge of the numerous parties of overland emigrants to Oregon and California; more, probably, having been affected among them by this disease than all others combined, and numbers have, in consequence, left their bones upon the plains. From the facts previously mentioned in this article, I am satisfied that not only as a *remedy* is potash valuable in scurvy, but that as a *prophylactic*, also, its qualities entitle it to a high rank among that class of agents. On the score of economy, a better one could not be obtained.

The attention of physicians is invited to this subject. It is only by numerous experiments that the efficacy of this article can be established on a firm basis, and if these are made, they will, I think, have as much reason to be satisfied with its action as myself.

ART. VI.—*Some Observations and Critical Remarks upon the Arcus Senilis, as a Diagnostic Symptom of Fatty Degeneration of the Heart.*
By E. B. HASKINS, M. D., of Clarksville, Tenn.

In the London *Lancet*, for May 11, 1850, Mr. EDWIN CANTON, Assistant Surgeon to the Royal Westminster Ophthalmic Hospital, &c., has published some interesting "Observations on the Arcus Senilis."

He claims to have demonstrated what had only been hinted at by "Dr. Schön of Hamburg," that the senile arc consists in a fatty degeneration of the cornea.

* See American Journal of the Medical Sciences, July, 1848, pp. 200-203.

That portion of Mr. Canton's paper, however, of greatest practical bearing, has reference to the supposed coexistence of the fatty degeneration of the heart with the arcus senilis. Upon this subject the author remarks :—

"It would be interesting to learn whether in those cases of fatty degeneration of the heart, which have of late years been recorded as occurring under the age of forty, there existed in the eyes any trace of that appearance which is indicative of the like condition of the cornea. I have in no instance found this senile arc, when well developed, unaccompanied by fatty degeneration of the heart. The ocular muscles have been always more or less in the same condition, and the extent of the degeneracy in them and in the heart, has appeared to me to bear a relation to the degree to which the cornea has been invaded by the deposit."—*Lancet*, May 11, 1850, p. 561.

In the same journal, Nos. for Jan. 11 and 18, 1851, in a second paper, Mr. Canton continues his observations upon this subject. After reiterating the quotation I have made, with the latter part of the extract *italicized*, he goes on to say :—

"Since penning these observations, I have had frequent additional opportunities of inquiring into the subject, and find them to be more fully borne out by extended experience.

"On discovering that the senile zone was produced by fatty degeneration of the cornea, I at once became desirous of ascertaining whether or not this appearance might be looked upon as an *exponent* (so to term it) of similar changes going on in other textures of the body; textures, the degeneracy of which we might suspect, but could not, during life, pronounce with certainty upon; and the fact being established, that the alteration in the cornea was of this peculiar character, and with it was to be found associated the same change in internal organs; a clue might thus be given to certain obscure affections, and a valuable aid to diagnosis be thereby secured.

"In endeavouring to establish the validity of this position, from frequent *post-mortem* inquiry, I found that the heart is, of all other organs, the one which most invariably presents fatty degeneration where the arcus exists; and the extent of change in the cornea, I believe I have good reason to say, may be regarded as a measure of the degree to which the heart-fibre has, in the same manner, become changed. Jan. 18, p. 67.

* * * * *

"Since announcing the fact of the coexistence of this condition of the heart with an arcus senilis, I have been much pleased to find that two high authorities on diseases of this organ (Dr. C. J. B. Williams, and Dr. R. Quain) have directed their attention to the subject, and that they, too, consider the presence of the arc as a diagnostic sign of this affection. * * * Dr. Williams remarks in his letter: 'In the foregoing cases, fatty degeneration of the heart was suspected, from the existence of symptoms of embarrassment of the circulation and respiration, not referable to any other lesion, the disorder being connected with a declining state of the general health, too enduring to be ascribed to merely functional disturbance. The preceding table* shows the existence of the arcus in the large proportion of twenty-three out of twenty-five cases. Out of these I have been able to prove the existence of fatty degeneration of the heart, by *post-mortem* examination in only two cases.' "† Jan. 18, p. 68.

* The reader is referred to Mr. Canton's paper in the *Lancet* for Jan. 18, 1851, p. 68, for the table of Dr. Williams's cases.

† We are not informed from this language, whether or not these two cases embrace all of the *post-mortem* examinations made of the twenty-five cases. It is presumed, however, from Dr. W.'s high character for candor, and devotion to medical truth, that they do.

Allowing all that can be claimed for these observations *that where fatty degeneration of the heart exists, the arcus senilis is generally present, they by no means show the converse—that where the arcus senilis is found the fatty degeneration of the heart exists.* For this end, another and somewhat different line of research must be instituted. It must be inquired how often, in a given number of subjects with the arcus senilis, the fatty condition of the heart is found, or suspected, from symptoms and *other* signs. I know that Mr. Canton distinctly states, that “I have in no instance found this senile arc, when well developed, unaccompanied by fatty degeneration of the heart.” Yet I understand from his paper, that in his cases, as in those of Dr. Williams, the observations were made upon *patients*—upon subjects who were suspected of this change of the histological elements of the heart.

In order in some slight measure to fill up this deficiency, to ascertain, as far as I could, what reliance may be placed on the arcus senilis as a diagnostic sign of heart affections; or, in what way this change in the cornea is related to other morbid conditions of the body, as manifested by symptoms, I have carefully recorded every case of arcus senilis that has fallen under my notice within the last three months, together with the symptoms, medical history, &c., of the subjects; and, though only twelve in number, I cheerfully submit them for publication; fully concurring with Mr. Canton, however, that “it is by extended investigations alone we may hope to arrive at the maturity of truth.”

Out of the twelve cases here recorded, it will be noticed that only two laboured under any symptoms referable to the heart, and only one where any organic alteration of that organ could be at all suspected, the palpitation, in the other case, being clearly of hysterical origin. One case laboured under phthisis pulmonalis; one under indigestion; one had *paralysis agitans*, and one other neuralgia. Six of the twelve subjects, or one-half, were healthy individuals. Three, or one-fourth, were under forty years of age, and two of them were quite healthy; the other had indigestion. One, or one-twelfth of the whole, was under thirty, and he a young man of remarkable health and vigour.

It may be objected that, as the subjects of these cases are all living, nothing can be affirmed of their internal structures, whether there is going on fatty degeneration of the heart or not. To this it may be answered, that the absence of the symptoms and signs of disease always raises the presumption of health, and to point to the arcus as the sign in these cases, is to *assume* that which is to be proved. Besides, if the “extent of change in the cornea,” which Mr. Canton remarks he has good reason to believe “may be regarded as a measure of the degree to which the heart-fibre has in the same manner become changed,” then, as some of Dr. Williams’s cases, where the arcs were slight, the symptoms of heart-disease were marked, it would be presumed that, in my cases, where the development of the arcs was marked, the symptoms of heart-disease would, at least, be perceptible.

It is true, Mr. Canton declares that he intends his "observations to apply only to instances where the arcs are being established as other manifestations of the decline of life are becoming developed, or where perversion of nutrition, occurring at earlier periods of existence, involves in its transformation the eye, as it at the same time implicates the heart-fibre with other and dissimilar textures." But if, as my cases tend to show, there are *general* causes acting to produce the senile arc, that do not, at the same time, involve the structure of the heart, or that there are *local* ones operating to produce the arc, the seat and nature of which cannot be ascertained, then it would appear that the *value* of the senile arc, as a diagnostic sign of fatty degeneration of the heart, is lessened in a direct ratio with the frequency of action of those causes; and as the cases I have submitted *do* show that the senile arc is quite common in subjects where no symptoms exist involving the healthy condition of the heart, and where no *local* cause of the change is ascertainable, it would then seem that the senile arc is of but little or no practical value, as yet, to determine the seat and nature of obscure diseases.

These remarks, it is believed, will not be considered inappropriate, when it is remembered that there are many obscure chronic disorders that involve, in a chain of organic relations, the healthy functions of the heart and lungs, that *may* prove amenable to treatment, and that would be abandoned to palliatives, were they determined to be owing to a histological degeneration for which no remedy is known; and when, too, it is considered how prone we all are to seize upon some simple and easily recognized sign as pathognomonic, that both covers our ignorance and curtails the labour of careful and patient investigation.

It may be remarked, in conclusion, that the cases recorded in the following table tend to confirm the observations of Mr. Canton, that the arcs are equally and symmetrically developed in both corneæ; and that they differ from his in showing the probability of the change commencing (when any difference exists) in the *lower* border of the cornea. Six cases, or one-half, present the lower arc in the most advanced state of development, whilst in the remaining six the arcs were equally developed above and below. In two, or one-sixth of the cases, the presence of the lower arc alone was discovered.

Colour of subject.	Sex.	Age.	Colour of eyes.	Pathological state of eyes.	Social condition, medical history, &c.
White	M.	52	Dark blue	Arc above and below on both cornæ. Well developed on <i>lower</i> .	Printer in early life, now publisher; temperate in habits; health very good; has no embarrassment of the action of heart or lungs; has never suffered from inflammation of the eyes.
White	M.	62	Dark hazel	Deep and well-developed zone on both cornæ.	Easy in circumstances; habits temperate; corpulent; subject to fits of palpitation of heart, with "short breath;" pulse irregular; has never suffered from inflammation of eyes.
Black	M.	52	Black	Well-defined zone on both cornæ.	Slave, but well treated; common field hand; under treatment for phthisis of two months' standing; action of heart undisturbed; has never suffered from "sore eyes."
Black	F.	90 (?)	Black	Well-marked zone on both cornæ.	Superannuated slave; health good except <i>paralysis agitans</i> ; no embarrassment of action of heart or lungs; eyes good for her age.
Black	M.	82	Black	Well-marked zone on both cornæ.	Common labourer; has been well treated; health very good; no palpitation of heart or disturbed respiration; eyesight good; has never suffered from inflamed eyes.
White	M.	58	Light blue	Upper and lower arc on both cornæ; <i>lower</i> most developed.	Circumstances easy; temperate habits; general health good; no embarrassment of action of heart or lungs; neuralgic pains of lower extremities; has never had inflammation of eyes.
White	M.	38	Light blue	Upper and lower arc on both cornæ; <i>lower</i> well developed, <i>upper</i> indistinct.	Stone-mason; health very good; has generally been healthy; habits temperate; has no embarrassment of action of heart or lungs; has never suffered from inflammation of eyes.
White	M.	70	Light blue	Well-defined zone on both cornæ.	Circumstances easy; temperate; health very good; stout frame; no derangement of action of heart or lungs; eyes have never been inflamed.
White	F.	60	Black	<i>Lower</i> arc distinct on both cornæ; <i>upper</i> feebly traceable.	Circumstances easy; rather delicate frame; health generally good; suffers hysterical attacks, with palpitation of heart; respiration at all times easy; never had inflammation of eyes.
White	M.	61	Light blue	Zone of uncommon ellipticity on left eye; right eye "out."	Circumstances easy; remarkably stout, and quite healthy; action of heart and lungs healthy; right eye lost from severe inflammation, left has never been inflamed.
White	M.	34	Dark hazel	Slight arc on <i>lower</i> segment of both cornæ.	Practitioner of medicine; health unsound; deranged digestion; no embarrassment of action of heart or lungs; has never had inflammation of eyes.
White	M.	27	Light blue	Well-defined arc on <i>lower</i> border of both cornæ.	Stout frame; takes much exercise; very healthy; temperate habits; no palpitation of heart or embarrassment of respiration; has never suffered from inflammation of eyes.

ART. VII.—*An Account of the last Illness of the late Honourable Daniel Webster, Secretary of State: with a Description of the Post-mortem Appearances, &c.* By JOHN JEFFRIES, M. D.*

MR. WEBSTER was of a sanguineo-bilious temperament, of a swarthy complexion, with straight black hair, with a large, athletic, and well-proportioned frame. He was five feet ten inches in height, and when in health weighed one hundred and ninety pounds. His appearance was peculiarly imposing, and the expression of his features, more particularly of his eye, was, perhaps, more powerful than that of any other man. He was nearly seventy-one years of age at the time of his death.

Mr. Webster, although endowed with an iron constitution, had been subject for the past eighteen or twenty years to an habitual diarrhœa, which, commencing as an occasional looseness, had gradually increased upon him until for the last three years it was persistent; for this, he was accustomed, latterly, to use opiates generally in the form of a "cholera medicine," which appeared to be composed of sulphate of morphia and the compound spirits of sulphuric ether.

For about the same number of years he had been annually subject to a somewhat severe form of catarrh, commencing from the 6th to the 16th of August, and continuing until about the 1st of October. The only exception to the occurrence of this was in 1839, when he was in Europe. He was sometimes confined by this for a short period, but usually continued his exercise and duties abroad. In the early years of this complaint, he did but little for it; but, latterly, he had adopted energetic treatment under medical advice, in the hope of preventing the annual visitation.

In August, 1851, while at Franklin, N. H., whither he had gone for retirement, hoping, by a change of climate to escape his annual catarrh, he was attacked, after exposure to the damp ground, with gout in his feet, mostly in the great toes; he was so far relieved of this, however, as to take a journey to the White Mountains; but, on his return to Franklin, the gout returned in a more severe and general form.

On the 9th of September, he came to Boston and placed himself under the writer's care. At this time, his complexion was sallow, and he had lost considerable flesh; his eyes were red, and his countenance indicative of great uneasiness; his pulse was full, quick, and firm; his nights were distressing and restless; there was constant thirst; the bowels were irritable, and, although without appetite, he was taking food without restraint, and, by advice, using stimulating drinks freely. He was also taking iodide of iron with

* The author is indebted to Dr. S. Parkman, for the arrangement of this paper from the notes read before the Suffolk District Medical Society.

hydriodate of potass. and minute doses of oxide of arsenic as a preventive of the catarrh. He had also used some remedies for the gout, and frequently resorted to opiates for his diarrhoea. With some difficulty he was induced to relinquish all these medicines, to restrict himself to the simplest food, and to retire to Marshfield for recreation and exercise. In September, he returned to Washington, expressing himself as being "perfectly well," having implicitly followed the directions given. During the winter of 1851 and 1852, he transacted a vast amount of business at the seat of government; being, however, frequently under medical treatment for his diarrhoea. He failed in flesh and strength towards the spring; and, in the latter part of April, went to Marshfield in hopes of recruiting.

On the 6th of May, 1852, he was thrown from his wagon, falling forward upon his hands, and striking his head with much force upon the ground. He was for some time insensible, but soon recovered perfect consciousness. On the 20th he came to Boston, and was visited by Dr. J. Mason Warren in consultation. He was found to have injured the joints of both wrists, the left more severely, without any apparent displacement or fracture; there was considerable swelling and great ecchymosis of the whole forearm, with frequent severe paroxysms of pain through the joint; there was also a slight flesh wound near the right temple. He made no complaint of uneasiness in the head. On the 24th May, he addressed his fellow-citizens in Faneuil Hall, being then suffering under great general debility. In July, at the time of his public reception in Boston, he was suffering more than usual from his diarrhoea, and was under medical treatment to enable him to go through the fatigues of that occasion.

On his return from Washington to Marshfield, in September, he took cold in Baltimore, and first complained of the symptoms connected with his final illness. On the 20th of September, he drove from Marshfield to Boston, a distance of thirty miles, for medical advice.

It was then observed that he had lost much flesh, which gave to his large eye a somewhat unnatural prominence. His face was pale with a peculiar sallowness; but there was no jaundice at this or any other time. He rose from the recumbent posture slowly and with some apparent difficulty, and he had the aspect of a very sick man. He stated that he had been more than usually unwell for a week or more; he complained of uneasiness on the left side of the abdomen, with consequent difficulty of lying on that side; there was also sometimes a sense of tightness across the lower part of the abdomen. The bowels were still loose, but not quite so irritable; the appetite was wholly gone; the skin was commonly very dry, and there was a constant dryness of the tongue and fauces, with much thirst. The tongue was covered with a light brown coat; the pulse was 106, quite full, but easily compressed, somewhat jerking, with four intermissions in a minute. The urine was scanty, high-coloured, and very turbid after standing, not coagulating by heat. The abdomen was much distended and resonant from flatus at almost every

part, but particularly at the arch of the colon; there was flatness in the hypogastric and iliac regions, and signs of dropsical effusion were thought to be perceived. The edge of the liver, more distinctly felt than at any subsequent period, was firmer than natural, but without tenderness on pressure. Neither was there soreness at any part of the abdomen. The feet and legs were oedematous, considerably so about the ankles. There was some soreness of the soles, especially under the ball of the great toe. There was a similar soreness in the left thumb and wrist which had been most injured by the accident. He had also flying pains about his lower limbs and body, described as similar to those previously experienced from the gout. The usual course of action of the bowels was a dejection at five or six P. M.; another at nine, and a third at from two to four A. M.; these, especially the last, were urgent, loose, and with much flatus. After the morning dejection, he took a portion of his usual "cholera medicine," which gave him relief.

He returned to Marshfield the next day, the 21st, with the following directions: To abstain from all mental labour, and to avoid fatigue in bodily exercise. The diet to be tea with bread and butter, morning and evening, and a little animal food at dinner, with one vegetable.

To take two drachms of castor-oil, and an equal quantity of lemon-juice, every second or third day, if troubled by distension, or if the bowels did not act kindly. To take a cardiac mixture twice daily, and a pill of one grain of acetous extract of colchicum with two grains of camphor each night.

To have the abdomen gently rubbed, and a hot alkaline bath applied night and morning; the feet and legs, after being smeared with olive oil, to be rubbed with warm spirit twice daily.

On the 28th, 29th, and 30th he was visited at Marshfield, and was found with much the same symptoms, except that the abdomen was more tense and flat, and there was well-marked fluctuation, with some soreness of the left side, for which five leeches were applied with relief. The urine was a little less scanty and turbid. He had continued to come down stairs, and one day had driven for four hours with visitors; but this had increased the difficulty of the bowels, and much fatigued him. He had had a little headache in the latter part of each afternoon; and he also spoke of a feeling of sinking and exhaustion, which came on about two o'clock each day.

On leaving him on the 30th, he was advised to substitute one-sixteenth of a grain of morphia for the "cholera medicine;" to have the abdomen embrocated with spirits of turpentine, diluted with common spirit; to take a pill of four grs. compound extract of colocynth, if the bowels required more action; to have eight or ten leeches applied to the right hypochondrium, if the bowels were more uneasy, and to take two teaspoonsful of brandy, with water, at 2 P. M. each day, if he felt exhausted.

During the writer's absence, he was attended by Dr. John Porter, of Marshfield, from whom frequent reports of his condition were received.

On the 6th of October, he was visited in consultation with Dr. James Jack-

son, of Boston. The symptoms continued much the same. Mr. Webster was about the house, though he had not been out. The opinion was expressed and concurred in, that there was ascites, dependent upon grave disease of some abdominal organ, which would ultimately prove fatal; although some relief might be obtained.

It was decided to substitute a mild tonic for the cardiac mixture; to give one grain of squills night and morning, to be increased if the stomach could bear it; to continue the morphia; and to double the amount of brandy; encouraging him also to take a little animal food.

The symptoms continued much the same until the morning of the 11th, when, on coming down stairs for a drive, he became faint, with nausea and retching, vomiting a little mucus. Visited at 7 P.M.; he complained of extreme distress at the præcordia, for which he was urgent to have relief; the nausea had subsided. A teaspoonful of castor-oil, with one-sixteenth of a grain of morphia, was directed, by which the pain was relieved, and an evacuation obtained about 2 A. M., consisting of much fecal matter, with very dark bile and gelatinous mucus. All medicines but morphia were omitted; castor-oil being directed to be used if the præcordial distress should return. An annoying symptom, consisting of pains about the feet, of which he had previously complained, was noticed to increase in severity from this time. He continued tolerably comfortable, and able to come down stairs every day; and sometimes to transact considerable business. He was feeble and emaciated, but his spirits were buoyant. Throughout his sickness it was noticed that he did not bend his body forward in rising, but was raised with the body erect; and more than once, upon being assisted to walk, he had said that he felt as if he should fall forwards.

On the 19th, there was a manifest falling off; he had several copious dejections, which were thought to contain some blood, and he had also two turns of retching; by these he was much enfeebled.

On the 21st, at 5 A. M., the dejection consisted of a large quantity of fecal matter, with much bilious and bloody fluid. At 7 A. M. he had another similar dejection, with bilious vomiting. Nausea and retching now became prominent symptoms, and he became more and more feeble, until at 5 P. M., on the 22d, he vomited about a pint of fluid blood with some coagula. During the night the vomiting became more urgent, always with blood; and at 2½ A. M. he had a copious ejection of fluid blood. By all this he was much exhausted. The vomiting of blood continued very profusely; and whenever he attempted to speak, he was interrupted by hiccough or retching.

On the morning of the 23d he announced himself conscious of his situation, and said, "I shall die to-night." From 9 until 1½ P. M. he remained free from vomiting. He was at this time visited by Dr. James Jackson, who had frequently been consulted during the progress of the disease. The vomiting of blood recurred during the afternoon. Dr. J. Mason Warren arrived towards night, and remained until the patient's death. Mr. Webster continued thus

gradually sinking from the loss of blood by vomiting, retaining the power of utterance until midnight, and some evidence of consciousness until 1 A. M., and sinking gradually, without convulsion, cold sweat, or haze of the eye, expired at thirty-five minutes past two on the morning of Sunday, October 24.

For the last two days he was supported by such stimulants as he could bear, and was quieted by opiates when required.

The autopsy was made by Dr. J. B. S. JACKSON, who furnishes the following report :—

Autopsy thirty-two hours after death; present Drs. Jeffries, Porter, J. Mason Warren, Wyman, Parkman, and Jackson.

The emaciation was very marked, as shown by the state of the integuments and muscles; the latter being wasted, pale, and flabby.

Abdomen.—The peritoneal cavity contained eleven pints of serum. There were also old and strong adhesions about the spleen, the gall-bladder, the cæcum, and to a small extent between the left extremities of the arch of the colon and the parietes of the abdomen.

The stomach was distended, and contained half a pint of very dark blood, about one half of which was in the state of a soft coagulum; and this was the only appearance that was found of coagulum in any part of the body. The mucous membrane was deeply stained by the contents, generally rather soft, and in the pyloric portion somewhat mamellonated. The intestines were opened throughout, washed, and fully examined with reference to the diarrhœa that had so long existed. Blood was found throughout in very considerable quantity as far as the descending colon, below which there was no trace of it; in the large intestine it was altered as usual in colour. Mucous membrane stained by the contents so far as blood extended. In the large intestine were numerous herniæ of the mucous membrane, so common in this situation; from many of these small masses of feces or of mucus could be forced out, and these were the only traces of feces that were found. Otherwise, the mucous membrane of the intestines appeared quite healthy; there being nowhere any ulceration to explain the diarrhœa, nor ecchymosis connected with the hemorrhage.

The liver was, throughout, very markedly granulated; dense, and contracted in size; the colour externally was greenish or bronzed, but internally everywhere of a pale red; showing, as we may not very unfrequently observe, the inappropriateness of the term "cirrhosis," which would generally have been applied to the present case. Weight of the organ, three pounds and one-third, avoirdupois. Bile in the gall-bladder nearly black, and of a tarry consistence.

Spleen small, pale, and shrivelled. Investing membrane to some extent opaque, white, thickened, and condensed; this change being probably due to the old peritoneal affection.

Kidneys and pelvic organs healthy.

Thorax.—Old pleural adhesions over nearly the whole of the right side; none on the left. Lower lobe of the left lung and the two lower lobes of the right much congested, and very dark; a change that undoubtedly occurred towards the close of life, being simply passive.

Heart flaccid; very little blood in cavities, and this was quite liquid. Slight disease of aortal valves, but organ otherwise healthy. Foramen ovale; a small valvular opening existed. Aorta not ossified, except to a small extent in the abdomen.

Head.—The membranes of the brain were most remarkably diseased. In the cavity of the arachnoid was a layer of fibrine which covered almost entirely and about equally the convexity of both hemispheres; it did not extend, however, beneath nor between them, nor about the cerebellum. In the recent state, it had a rather dull, yellowish, infiltrated, oedematous appearance; being one-fourth of an inch in thickness over the upper surface, but becoming gradually more thin on the sides, where it terminated in a thin edge. The adhesion to the dura mater was in some parts quite close; but it was generally very readily stripped off, and left the arachnoid with its usual polish. It was more adherent to the subjacent membrane; this last being irregular, and having generally a clouded and slightly opaque appearance, with many milk-white spots, but without any appreciable thickening. The quantity of serous effusion into the membranes was altogether large. The subarachnoid tissue corresponding to the layer of fibrine above described was infiltrated with a straw-coloured serum in some places, separating the convolutions from each other; this separation was quite remarkable at the posterior part of the right cerebral hemisphere on its upper surface and near the median line, there being also a slight depression at this part. The dura mater adhered firmly to the calvaria, but was healthy in structure, as were the membranes otherwise; there was, however, a serous infiltration into each plexus choroides; though no more, if not less than usual, into the lateral ventricles. No appearance of recent meningitis; and no effused blood or cysts in or about the false membrane. The brain itself was perfectly healthy; and the arteries at the base very nearly so. Cranium healthy. Over the right frontal region a scar existed, the result of the injury that occurred last May; integuments not otherwise remarkable.

A portion of the fibrine from the arachnoid cavity having been removed for microscopical examination, it was found, some hours afterwards, and when the serum with which it had been infiltrated was absorbed, to have almost the consistence of one of the natural tissues of the body; being strong enough to bear considerable traction; it also appeared then to have somewhat of a laminated structure, and bloodvessels were distinctly seen in it even with the naked eye. Dr. Wyman found it "organized, and, in some places vascular. Under the microscope, the lymph was resolved into minute fibres, like those

forming the white fibrous element of areolar tissue, and including in their meshes large numbers of minute granules."

Recapitulating the points of interest in this case, it will be observed that the immediate cause of death was hemorrhage from the stomach and bowels. For this, no source could be found in the lesion of any vessel; it must therefore be regarded as a simple exhalation dependent upon a disorganization of this fluid, indicated, moreover, by the almost entire absence of coagulation. The relation of this hemorrhage to the disease of the liver will also be noted as coinciding with previous experience; it being well known that, in certain cases where there is an altered action of this organ, there is a tendency to disorganization of the blood, manifesting itself thus in hemorrhage.

The morbid appearances observed in the cerebral membranes possess, also, very great interest in several aspects. It will be unnecessary to dwell upon the particular appearances carefully described above. A very full and clear description of these interesting forms of extravasation has been published by Mr. Prescott Hewitt, in the twenty-eighth vol. *Medico-Chirurgical Transactions of London*, and the appearances, in this case, coincide with those there described. Grisolle (*Pathologie Interne*, vol. i.) has also well described this affection, after the original descriptions of Serres, Baillarger, Boudet, and Prus, who were the first to call attention to this particular lesion. The case of Mr. Webster may be regarded as unique, however, in this respect, that no impairment of the power of the nervous system was observed before death; for although a few symptoms, such as his mode of locomotion, his sense of falling, and a slight hesitation of his speech, may now be remembered and connected with this condition, it will be sufficient to prove the entire absence of any suspicions of the kind during life, to state that the brain would not have been examined at the autopsy, except for the desire of making the measurements, &c., recorded below. The connection of this meningeal hemorrhage with the cirrhosis of the liver will also give rise to interesting speculation; for although it is quite probable that the origin of the effusion should be ascribed to the accident in May, still, it is not unlikely to be remotely dependent upon the disorganization of the blood consequent upon the disease of the liver, since among Mr. Hewitt's cases there are some recorded where an effusion quite equal to this took place in connection with a cirrhosis without any injury at all. It is possible, moreover, that the accident may not have been the cause of the effusion, which may have taken place since that time; but, in the presence of what would appear an adequate cause, it will be unnecessary to look beyond.

In the treatment of the disease, attention was particularly directed to the duodenal obstruction, relief from which was obtained by the laxatives occasionally administered, and these, with opiates, were almost the only important medical agents.

The following very interesting account of the cranial cavity and brain is furnished by Dr. JEFFRIES WYMAN:—

The dimensions of the brain, as indicated by the measurements of the cranial cavity,* were as follows :—

Longitudinal diameter	.	.	.	.	.	7 $\frac{7}{8}$ inches.
Transverse	"	.	.	.	.	5 $\frac{1}{2}$ "
Vertical	"	.	.	.	.	5 $\frac{1}{4}$ "
Breadth of occipital fossa	.	.	.	.	.	4 $\frac{3}{8}$ "
" frontal	"	.	.	.	.	5 "

The posterior clinoid processes were seven-eighths of an inch in front of the centre of the cranial cavity.

The circumference of the head was 23 $\frac{1}{2}$ inches, and the distance from the meatus of one ear to that of the other, over the top of the head, was 15 inches.

The capacity of the cranium, determined according to the method adopted by the late Dr. S. G. Morton, of Philadelphia, was 122 (one hundred and twenty-two) cubic inches.

The substance of the brain was firm to the touch, and, as regards colour and consistence, appeared to be healthy. The depth of the spaces between the convolutions was, on the vertex seven-eighths of an inch, and the "cortical" or gray substance was three-sixteenths of an inch in thickness.

The corpus callosum, or the great cerebral commissure was large, measured four inches in length from before backwards, and at the central portion was one-fourth of an inch in thickness.

The pineal body, as in the great majority of instances, contained calcareous concretions.

The weight of the brain, including the cerebrum, cerebellum, and medulla oblongata, as far as the lower extremity of the pyramids was (in avoirdupois) :—

	Lbs.	Oz.	Drachms.	Grs.	Grains.
Brain (encephalon)†	.	3	5	8	17.75=23,424.0
Cerebrum	.	2	14	7	14.09=20,330.5

The measurements which have been given above, are almost without exception of unusual proportions. The average length of the cranial cavity does not exceed six and a half inches; its transverse diameter is five inches, and the vertical a little less.‡

* In consequence of its flaccidity, the natural diameters of cerebral substance are no longer preserved after the brain is removed from the cranial cavity; its diameters are, therefore, more correctly measured by determining those of the cavity which it filled.

† In Troy weight, the result was as follows :—

	Pounds.	Ounces.	Pennyweights.
Brain	.	4	0
Cerebrum	.	8	6

‡ Dr. Morton gives the average diameters for European and Anglo-American skulls as follows; Longitudinal, 6 $\frac{1}{2}$; transverse, 5 $\frac{1}{2}$, and vertical, 5 inches; these measure-

The cranial capacity was very unusual, the largest which has yet been recorded, though measurements in cubic inches have, as yet, been made by comparatively few observers. In Dr. Morton's Tables of the measurements of 623 crania of different nations, including Caucasians, Mongolians, Malays, Americans, and Negroes, only four instances occur in which the capacity exceeded one hundred cubic inches; of these the largest were one English skull, measuring 105, and one German 114 cubic inches. According to Dr. Morton, the average capacity for the Teutonic family (including English, Germans, and Anglo-Americans) is 92 inches.*

The two superficial measurements of the head were very nearly those of Cuvier, the circumference of whose head was 22 inches 4 lines (French), and the measurement from ear to ear over the top was 15 inches. The circumference of Napoleon's head is reported to have been 23 inches.

The weight of the brain deviated much less from the average than the measurements; it was entirely out of proportion to the unusual dimensions of the cranial cavity. The average weight of an adult healthy male brain is 49½ ounces, or 3 pounds 1½ ounces avoirdupois.† As has been already stated, there existed an effusion of serum into the subarachnoid areolar tissue, and of serum and lymph into the arachnoid cavity. The lymph had existed for a long time, it covered the convex surface of the cerebral lobes, was a quarter of an inch in its thickest portion, and extended to the sides, where it became quite thin. Both serum and lymph, there can be no doubt, encroached upon and occupied the space once filled with cerebral substance. The weight given above, therefore, cannot be regarded as being equal to the weight of the brain in a state of health. This last we now have no means of determining except by an approximation, which has been made in the following manner, in accordance with a suggestion by Professor Treadwell, of Cambridge.

ments, however, are external, and include the thickness of the skull, and would, therefore, be too large, by the thickness of the cranial walls, to represent the size of the brain. *Human Anatomy*, p. 70: Philadelphia, 1849.

Cruveilhier, following Bichat, makes them somewhat less than those given in the text; his mode of measurement, however, does not give the greatest dimensions of the cranial cavity. See his *Traité d'Anat. de l'Homme*, t. i. p. 140. Paris, 1843.

* Catalogue of Skulls of Man and the inferior Animals in the Collection of Samuel George Morton, M. D., Philadelphia, 1849. See Comparative Table on page viii., and Specimen No. 434.

Dr. J. B. S. Jackson, in the Descriptive Catalogue of the Anatomical Museum of the Boston Society for Medical Improvement, has given the measurements of thirty skulls of different nations, the largest of which, a Theban and a Negro, were 95 inches each. Of ten Hindoo skulls, measured by Dr. S. Kneeland, Jr., the largest, that of a Rajah, contains 92 inches. *Proceedings of Boston Soc. Nat. Hist.*, vol. iii. p. 213.

† This is the result of observations on two hundred and seventy-eight adult healthy male brains. See Sharpey's Quain's *Anatomy*, Dr. Leidy's edition, vol. ii. p. 186. This determination is based on the combined observations of Reid, Sims, Tiedemann, and Clendinning, which are all reduced to avoirdupois weights.

The specific gravity of the brain is, according to Cruveilhier and others, 1030, water being 1000. A cubic inch of water weighs 252.5 grains, and 122 cubic inches (the cranial capacity), would equal 30,805 grains, to which must be added 3 per cent., or 924 grains (the excess of specific weight of brain over water), which gives 31,829 grains as the full capacity of the cranial cavity in weight for cerebral substance. The brain, however, does not actually fill the whole cavity; a correction must, therefore, be made for the spaces occupied by the tentorium, falx, sinuses, the dura mater of the calvaria, and the cephalo-spinal fluid at the base of the brain. If we deduct eight ounces for such spaces, we shall have an actual weight of 28,329 grains; or, if nine ounces are deducted, 27,891 grains. Taking the last approximation as the one the least liable to error of excess, Mr. Webster's brain will be found to rank among those whose brains are generally cited as instances of remarkable size, as follows:—

	Lbs.	Ozs.	Drs.	Grs.	Grs.	Ozs.
Cuvier*	4	0	5	10	= 28,147	= 64½
Webster	3	15	12	0	= 27,891	= 63¾
Abercrombie†	3	15	0	0	= 27,562	= 63
Spurzheim‡	3	7	1	0	= 24,089	= 55⅙
Dupuytren§	3	1	10	27	= 21,738	= 49¼

The brains, the weights of which (in avoirdupois) are included in this table, are not the only ones on record remarkable for size. In the table of Dr. Sharpey, already quoted, there are enumerated as weighing between 55 and 59 ounces, avoirdupois, inclusive, 28 brains; and between 60 and 65 ounces, 7.||

* In the official report of Cuvier's *post-mortem* examination, the weight of the brain is given as 3 livres, 11 onces, 4.5 gros, poids de marc, or old French weight; this, reduced to avoirdupois, gives the weight in the above table. It has, however, been differently stated by physiological writers. Tiedemann reports it at 3 lbs. 11 ozs. 4 drs. 40 grs. avoirdupois. (Memoir on the Brain of the Negro, Philos. Trans. 1836, p. 502.) This erroneous computation has been often repeated; and is the one given in the Cyclop. Anat. and Physiology, Art. Nervous System, p. 664, and in other works. It is correctly stated in Sharpey's Quain's Anatomy.

† Quoted from Sharpey's Quain's Anat. vol. ii. p. 187.

‡ Anatomical Report on the Skull of Spurzheim, read April 2, 1835, before the Phrenological Society of Boston, by N. B. Shurtleff, M. D. Annals of Phrenology, vol. ii. p. 72: Boston, 1835.

§ Dupuytren's brain was really not remarkable for size, being only two drachms above average; it is generally erroneously reported at 4 lbs. 10 ozs. Troy. An official report, signed by Broussais, Cruveilhier, Husson, and Bouillaud, which may be found in the *Revue Médicale*, 1835, states it to have weighed only 2 livres, 14 onces, poids de marc. This, reduced to avoirdupois, is equal to the amount given in the table.

|| In estimating brains by weight, it must be borne in mind that quantity and not quality is considered; the anatomist has no means of determining quality. The head of Byron may be cited as an instance where small size was associated with great activity. Lord Napier informs us, that of fourteen persons who dined with him on

Nothing is said of the individuals from whom they were taken; of the two largest, one weighed 63 and the other 65 ounces; it is not improbable that these were the brains of Abercrombie and Cuvier; 63 ounces being precisely the weight of the former. In making out the table, all instances with fractional parts were classed with the next integral number; and, as Cuvier's brain weighed over 64 ounces, it would rank as 65 ounces. If this be not the explanation, then there is on record a larger healthy brain than that of Cuvier.

ART. VIII.—*Report of a Case of Extensive Disease of the Cervical Vertebrae, with Remarks on this and some other forms of Carious Disease of the Spine.* By BUCKMINSTER BROWN, M. D., of Boston.

SCROFULOUS disease of the spine, terminating in caries, is a frequent as well as one of the most inveterate forms in which this constitutional taint presents itself to our notice. It often commences without any external exciting cause, and is as often traced by the patient or his friends—who are actuated by the desire, so inherent in the human mind, to find for every result an evident cause—to some injury slight or severe.

Angular curvature, however, may, without exception, be attributed to an original or acquired feebleness of the recuperative powers of the system, and is generally attended by other of the distinguishing and characteristic insignia of the strumous diathesis.

Undoubtedly a blow or fall, which in a healthy subject would occasion but trifling and temporary inconvenience, may in certain instances produce a low degree of subacute inflammation in the spine, or elsewhere, sufficient to arouse that slumbering hereditary predisposition, which, lying dormant, is ready, on the slightest excitement, to spring into action.

It is, however, but the spark applied to a storehouse, hastening the explosion which would, sooner or later, have spontaneously taken place from the chemical action insensibly going on among its own materials.

The bones of the spine and of the hip-joint are the parts most frequently

one occasion, not one could wear Byron's hat. Napier's servant, who had the smallest head in the 90th Regiment, so small that he required to have his caps made expressly for him, tried on Byron's hat and found that it just fitted him. See Moore's *Life of Byron*. In Dr. Bruno's report of the autopsy of Byron, his brain is said to have weighed "six pounds (*mediche*)."
See Count Gamba's *Narrative of Byron's last Journey to Greece*, p. 271, London, 1825. This must be an error, if the pounds are those of apothecaries' weight. The above anecdote shows that his head was not large. Thorwaldsen's bust does not give it unusual elevation; and Moore states that it was "disproportionately small." His habit of shaving off his hair gave it an appearance of elevation.

affected by caries, and, when the disease proceeds unchecked by treatment, suffer the most severely from its devastations. Of this elective tendency, we have ample proof in the numerous pathological specimens of carious spine and hip to be met with in every cabinet of any size either in Europe or America; and, independent of this evidence, private experience sufficiently evinces that such is the fact.

An example of disease of the vertebrae so extensive in its effects as the following, both as regards the bony structures destroyed or removed, and the implication of parts so essential to vitality as the upper portion of the spinal nerve, even impinging on the locality, so to speak, of life itself (the respiratory tract of Bell) is of most rare occurrence, and perhaps has never before been met with.

The patient, George Burr, a mulatto, was 27 years of age. His stature was short, bones small. In February and March, 1851, he was treated for what his friends believed to be rheumatism. He had severe pain in the back of his neck, between his shoulders, in his arms, and shooting through his chest. While under treatment, a puffy swelling made its appearance between the scapulae. This swelling disappeared in a few weeks. The latter part of March, while on his way from Boston to Plymouth, an accident happened to the cars a short distance from the city, by which he was thrown into the water, but sustained no other injury. He appeared to suffer no immediate inconvenience from this exposure further than a severe chill, which came on after his long walk back to the city in drenched clothes, the day being cold and stormy. The latter part of the summer, which was passed in Plymouth, he frequently complained of a feeling of numbness in his lower limbs. In October, he had a severe attack of epistaxis, which threatened life, and by which he was much debilitated. The latter part of October he returned to Boston. At this time there was a swelling on the back of his neck extending from the occipital bone to the fifth or sixth cervical vertebra. The jar of the cars produced much distress, and he was obliged constantly to steady his head with his hands during the journey. At this period there was at times some degree of deafness.

For some months after his return to Boston, the patient continued in about the same situation. I saw him for the first time the latter part of February. A fortnight previous, after making a sudden movement to look out of the window, he laid down with less caution than usual, resting his head upon the arm of the sofa, when he felt a sudden twinge, and heard a crack in his neck, at the same time his head was violently twisted towards the left shoulder. He was immediately seized with the most intense agony, dyspnoea, general convulsions, alternating with rigidity or a cataleptic state of the limbs. He remained in this situation some hours, after which he walked across the street home, where he had another similar attack. At times, during the night, he appeared to be in *articulo-mortis*, lying perfectly motionless, covered with large drops of cold perspiration. Towards morning there was some improvement in his symptoms.

When first seen by me, the head was, as above described, strongly rotated to the left; the swelling in the neck had partially disappeared; there was total inability to move his head independently of his body, and it was drawn somewhat backward, as well as to the side. All the muscles of the cervix were rigidly contracted, and in every motion the consentaneous and instinctive

energy of the whole body seemed to have but one object, that of keeping the head steadily in its place.

The usual diagnostic marks of carious vertebrae were not present. There was no angular projection of one or more of the spinous processes, and more especially there was no anterior or lateral drop of the head, pathognomonic of disease of the cervical vertebrae, particularly of the superior, and, also, there was wanting that peculiar sinking of the head between the shoulders, which I have learned to consider as characteristic of caries of the inferior. And there was as yet no paralysis.

On more minute examination, however, of the spine in this region, I found a remarkable condition of the vertebrae. One of the spinous processes had disappeared from its normal position, and at the upper part of the neck, the finger sunk into an excavation in which it could be laid flatwise, without any more than filling the space. On examining the pharynx, a projection or fullness was observed at the back part, on a level with the third or fourth cervical vertebra. A slight degree of soreness of the throat was complained of. I stated my opinion that there was luxation of the cervical vertebrae at the point indicated; the result of caries.

In the course of a week from this time paralysis supervened. It commenced in his arms, and extended until voluntary power over every muscle in the body was destroyed, with the exception of those about the mouth and eyes, which were only partially affected.

The muscles of the lower extremities still possessed a firmness and tone very different from the flabby, lax condition observed in paralysis from disease of the lower portion of the spinal cord. This evinced a continuance of reflex power below the seat of the disease, and that the property, inherent to the nerve, of maintaining the contractility of the muscles paralyzed to the influence of the will, was undiminished. On the contrary, and in confirmation of the observations of Dr. M. Hall and others, the power referred to was in this case and others which have fallen under my observation increased, so as to produce a remarkable degree of rigidity. The muscles about the neck and arms were totally deficient in firmness or tone, and hung like those of a corpse. Sensation below the disease was lessened, but not annihilated. The arms, hands, legs, and feet were very cold to the touch, although the patient thought them comfortably warm, and sometimes he felt in them a burning heat. His pulse was 100, and his respiration 17 or 18 per minute. In respiration, there was no motion of the abdominal muscles. It was entirely thoracic. Probably maintained chiefly, if not entirely, through the par vagum, and perhaps the sympathetic, by means of the filaments which this nerve derives from the cerebro-spinal system.

The emaciation was extreme; appetite good; deglutition not materially impaired; bowels costive; and he had a slight cough. His mind was clear, and his countenance not anxious.

For the two or three succeeding weeks the patient was in the hands of an Indian, or botanic doctor. When I again saw him, his situation had not varied much from that above described. The cough had increased, and he expectorated large quantities of bloody muco-purulent matter. The physical signs of pulmonary disease were not strongly marked. There was complete relaxation of the muscles of the neck; they had not the slightest power over the motions of the head, which fell when any attempt was made to move him. The sign of dislocation had partially disappeared after the complete loss of contractility in these muscles. The least change of position was attended with the most alarming symptoms. The assistance of four persons

was required when he was turned. One to guide the head, while another took the shoulders, etc. Even with all this caution, there was always dyspnoea, spasm, cerebral symptoms—as dizziness, etc., aphonia and extreme exhaustion.

He experienced much relief from a spring support that I adapted to his neck, which sustained his chin, and bearing on the mastoid process and base of the cranium on each side, and on the sternum and clavicle below, effectually steadied his head. This he wore to the time of his death. Generous and somewhat stimulating diet was directed.

Convulsive movements of the legs were frequently excited by gently touching his feet; and he was constantly annoyed by spasm of the different muscles, or by “a springing” of the legs without any external cause.

The patient remained in this state until his death, the immediate exciting cause of which appeared to be some mince-pie that was clandestinely procured by one of his attendants. His mind was unclouded to the last. He died on the 18th of April. There was at no time relaxation of the sphincter.

Post-mortem.—Body excessively emaciated. No curve or projection of any part of the spinal column. On the anterior face of the bodies of the cervical vertebrae, the cyst of an old abscess was found. This cyst contained no fluid, was about the size of an hen's egg, and through an opening formed by the removal of the body of the second vertebra, and which extended from the first to the third, it communicated with the rachidian canal between the dura mater and the arachnoid. It is probable that the collection of pus existed at first external to the membranes, and finally opened through the dura mater into its cavity, which accounts for the disappearance of the effused fluid. On opening into the upper part of the cyst, towards the medulla oblongata, a loose piece of carious bone, the size perhaps of half a filbert, rolled out of the medullary cavity. In the course of a careful dissection, another piece much larger than the first, also loose and carious on all sides, was found. These were the remnants of the odontoid process and of the body of the axis which was entirely destroyed or removed, with the exception of a small lamina on the left side, that still remained attached to the semicircle of bone. The inferior articulating process on the right side was carious. The superior on the same side and the transverse with its vertebral foramen destroyed. The superior articulating process on the left carious, its articulating cartilage and capsular ligament gone, and the caries extended over the lamella towards the posterior arch. Ascending to the atlas, the disease had destroyed both inferior articulating cartilages and partially the processes, extended anteriorly round the condyles, upwards towards the superior condyles, and posteriorly through the left lamina of the posterior arch, breaking entirely through it at one point, and continuing on until it involved the posterior tubercle. In the occipital bone, the right articulating condyle and the basilar process was roughened, thinned, or its continuity entirely destroyed.

The apex of the odontoid was found suspended by its alar ligaments in its normal situation. The occipito-axis ligament which incloses the odontoid process was ulcerated through, thus permitting the fragments of this process to find their way into the vertebral canal. This process had been twice broken; once from its apex, which had been left adhering by its ligaments to the margin of the foramen-magnum, and once at its base, from the body of the densatus, which had likewise separated from the rest of the bone.

It is evident that one of these fractures must have occurred at the time when a crack was heard and felt in the neck, followed by immediate luxation and the symptoms previously described.

The anterior face of the body of the third vertebra was also affected with caries, and the intervertebral substance almost completely destroyed, together with a part of its right articular process, and the whole of its anterior pedicle which should have inclosed the vertebral foramen.

Softening had likewise commenced in the cartilage between the bodies of most of the other cervical bones. Some, when in a fresh state, presented fine examples of central softening; and others, of well-defined ulcerated perforations, illustrative of the earliest stages of the disease when commencing in this part. The body of the sixth was deeply corroded, and the transverse processes of the seventh somewhat so. There was a remarkable, almost translucent thinness of some parts of the *os occipitis*.

The medullary substance in the cervical region was softened from the *foramen-magnum* to the first dorsal. The upper part was reduced to a pultaceous, semi-fluid mass. The *medulla oblongata*, of its natural consistence and appearance. The brain was healthy. Tubercles were found in the lungs, and strong, old pleuritic adhesions on both sides.

It is an extraordinary circumstance that, after the fracture of the *dentatus*, the head should still have maintained its upright position until the occurrence of paralysis. This phenomenon can only be accounted for by the dislocation, made evident at the time by the injury inflicted on the nervous system, by the rotation of the head, and displacement of the spinous process, in consequence of which the *vertebrae* were turned in such a way as to support each other, and in some measure supply the place of the broken bone.

It will, perhaps, be interesting to describe the exact position of the parts by which this fortunate result, so far as the life of the individual was immediately concerned, was rendered possible.

The thin, brittle fragment which still remained of the body of the axis on the left, rested on the pedicle of the third vertebra on the same side, anterior to the vertebral foramen, thus affording support in an upright though rotated position; while a rapidly decaying pedicle of the posterior arch on the right, which had slipped forward on the inferior articulating process of the vertebra above, with its lower edge resting on the body of the third, effectually prevented the drop of the head forward.

The spots specified bear the marks of pressure from the corresponding points of bone.*

That entire loss of power did not immediately follow the accident, is accounted for by the fact that, although the caliber of the canal was lessened, yet it was not directly impinged upon by any sharp edge or point of bone.

When paralysis did take place, it was a consequence of the extension of the disease to the membranes, and through them, thus bringing the purulent matter in contact with the spinal nerve, which, at the point indicated, *appeared* to have suffered complete disorganization. That its functions were not wholly annihilated is, however, evident. There must have been a portion, the most remote from the earliest seat of the disease, viz., of the posterior columns, that

* The parts described have been carefully preserved.

still retained, however imperfectly, the power of conducting to the brain the slight degree of sensation which remained in the body below this point.

It will be found, upon investigation, that the spinal nerve does in reality permit of a much greater degree of equable compression, without producing immediate paralysis or disorganization, than *a priori* we should have deemed possible.

If, at the moment of the first occurrence of the displacement, life is not instantly extinguished, the nerve may become accustomed to the new state of things, and fulfil its functions more or less perfectly, according to the amount and cause of the accident.

There are accounts of two remarkable cases reported by Goetz, of Halle, and Wigan, which latter has been cited by Mr. Lawrence, proving the extent to which this diminution of the compass of the canal may take place without destroying nervous power. In the former, the occipital foramen was diminished one-half, without paralysis.

The case was that of a young man sixteen years of age. He had a gouty constitution. The bones of the neck finally became diseased, and his head gradually inclined in a lateral direction, so that, in course of time, it fairly lay upon the right shoulder, where he was obliged to carry a cushion for his head to rest upon. This patient died of apoplexy while walking in the street. There was complete ankylosis of the os occipitis with the atlas and odontoid process. The first vertebra was displaced anteriorly, and the process of the second projected into the foramen-magnum in such a manner as to lessen it one-half, producing, of course, great compression of the nervous mass.

In the case cited by Mr. Lawrence, there existed bony union of the occipital bone with the atlas and axis, with displacement of the first vertebra to the left, of the second to the right, and projection of the odontoid process into the occipital foramen, close upon the right anterior condyloid foramen. The subject died of caries of the lumbar vertebrae.

Sandifort gives a drawing of a case, in which the first and second vertebrae were solidly ankylosed together, and with the occiput. Previous to the union, a most remarkable displacement of the upper vertebrae had taken place, by which two-thirds of the foramen-magnum had been closed. In addition, a strong osseous column extended from the jugular process of the temporal bone, on each side, down to the transverse process of the atlas, to which it was firmly united. This was certainly a most extraordinary provision of nature for preserving equilibrium and supplying the place of the dislocated bones. These adventitious side-bones were, in fact, two natural splints.

The history of this case is imperfect. The individual lived a long time after the luxation, but we are not informed of the state of the motor or sentient nerves. The case is, nevertheless, an interesting one, and worthy of note in this connection.

Duverney has likewise described one somewhat similar. The six upper vertebrae were united by bone, and there was a luxation so complete as to

throw the odontoid process back to within the distance of two lines of the posterior arch.

Other writers, as Hunauld, in the *Anatomie Chirurgicale*, Frank, and Meckel, have related instances resembling, in some respects, the preceding. These descriptions, however, are not accompanied by any accounts of the symptoms which attended this state of things during life, and therefore can be considered simply as scientific curiosities.

In the more common forms of angular curvature of the spine, the diameter of the canal, instead of being decreased is sometimes enlarged, and, in the majority of cases, the paralysis, which is so frequent an attendant on this disease, cannot be attributed to the alteration in the position of the bones. When it does occur, it is probably occasioned by the pressure of the tuberculous and puriform matter which is effused; or, when this is not confined within parietes sufficiently inelastic to produce such an effect, and as an additional independent cause, it comes on as a consequence of the disease involving the membranes, or the cord itself; in which case, the paralytic symptoms occur in the latter stages.

When combined with abolition of the voluntary power, we find in the muscles not simply the property of tone remaining, but, as is sometimes the case, strong contractions, we may with justice conclude that there is present some more active exciting cause; that there is probably some mechanical irritant, as points or spicula of bone, impinging on the posterior columns of the spinal cord. In the case of Burr, which we have given above, the rough fragments that were found floating about in the vicinity of the medulla oblongata, at times, if not constantly, lying directly upon it, will account for the state of rigid flexion in which the lower limbs were for the most part retained.

It is an interesting object of inquiry in connection with angular disease, which of the spinous processes it is that projects, or, when more than one are implicated, which is most salient.

This has been the subject of experimental and pathological investigation by various writers. MM. Nichet, Delpech, and Bonnet, have determined that it is always the one diseased, or that which has been most affected, which forms the angle.

According to the observations of these gentlemen, the vertebra placed immediately above tips forward, or "submits in its totality to a forward movement," by which the spinous process of the diseased bone is left uncovered, forming of course a sharp projection.

This undoubtedly is the fact, as can be satisfactorily ascertained, not only by examinations of the diseased parts after death, but also experimentally, on the skeleton, by bevelling off anteriorly the bodies of one or two vertebrae in a healthy spine, in such a way as to simulate, as nearly as possible, the state in which they are most frequently found when affected with caries.

I will here refer to a circumstance that has, in one or two instances,

attracted my attention, and which was particularly to be observed in the case of young Burr. When relating the case, I stated that there was no pus found in the cyst after death. The small amount in the spinal canal, or which was at any time effused, when placed in comparison with the extent of the disease, is an incident worthy of note.

Destruction of the vertebrae may be the result of three different forms of disease. In the first, there is simply slow absorption without suppuration or caries. In the second, there is caries with ulceration and abundant purulent or tuberculous deposits; and authors speak of a third, but certainly very rare species, which has been denominated by the French *carie sèche*, an ulceration of which the products are absorbed as fast as they are generated. There has likewise been observed a species of caries, in which the disease discovered after death was comparatively inconsiderable, forming a remarkable contrast with the obstinancy and severity of the symptoms which had existed during life. Symes draws attention to this fact, and relates one or two striking examples. He says "there is in his possession the thigh bone of a woman who laboured for thirteen years under caries of the trochanter major, yet the whole disease may be covered by the point of a finger, and is not thicker than a sixpence." The reverse of this is, however, of most frequent occurrence. The quantity of pus which is deposited, particularly when the dorsal or lumbar vertebrae are affected, is sometimes enormous. In a subject who died of this disease, which I examined in Basle, Switzerland, a few years since, the entire spinal column, from the upper dorsal to the lower lumbar, was imbedded in one large abscess, which, pursuing the course of the great vessels through the abdominal ring, formed a double psoas abscess in the groins.

The amount of pus found in this case was immense, although the pleuritic and other symptoms had so veiled the primary disease during life that it had not been with certainty diagnosticated.

In a case of angular disease of the lower dorsal region at present under treatment, there is an excessive accumulation of fluid, probably behind the peritoneum. The abdomen is swollen to the size of a woman's in the latter months of gestation. The intestines are found by percussion to have been divided, and pushed to each side, by the gradual advance of the tumour, and the double layer of the peritoneum, stretched tightly beneath the integuments, seems to render further enlargement impossible. The disease, in fact, appears to have been arrested, the swelling having remained stationary for several months; while, in other respects there has been a decided and manifest improvement. The lower limbs, which were completely paralyzed, are recovering their power, the patient having commenced walking with assistance, while the distress on assuming the erect or semi-erect position has entirely disappeared. Respiration, digestion, and other functions are healthy.

During the early part of the disease, the patient frequently experienced, on being moved, a feeling of grating, or crepitus, between the denuded surfaces of bone. Appearances and symptoms now countenance the hope that, during

the many months she has observed the horizontal position, with her back firmly supported in such a manner as to prevent motion at the diseased part—nature being in this way afforded uninterrupted opportunity to perform the cure—osseous union has been gradually taking place between the bones.

The extent to which the bony structures are implicated in this case can, of course, only be a matter of conjecture, aided by the appearance of the curvature, and past experience in similar cases. From the local indications, independent of the amount of fluid, we are led to the opinion that the disease is confined within comparatively narrow limits, not extending beyond two, or, at the most, three contiguous vertebrae.

Lateral curvature of the spine to the right or left, the most common form of spinal deviation, characterized by a greater or less prominence of one of the scapulae—which is so prevalent among persons of sedentary habits of both sexes, is rarely combined with the formidable disease we are now considering.

In 532 cases of spinal affection which have come under my observation, in the practice of Dr. J. B. Brown and in my own, 288 were simple lateral curvatures, 102 angular projections from tuberculous softening and carious disease, 21 a combination of these two forms, while the remainder consisted of posterior and anterior curvatures, etc.

Thus, in 123 cases of angular disease, I find 21 only in which this curvature is united with a lateral deviation.* Duval found a lateral curve in 10 out of 116 cases of angular projection.

This infrequency is only what we should expect when we consider the want of analogy in the cause, and the comparatively innocent nature of the former deviation.

Both curves, in these exceptional cases, may unquestionably originate in the structural disease. But this is not constantly true, as can easily be made evident, in the first place, by the general appearance of the spine; the side curve being rarely so decidedly angular at any one point, as to indicate the existence of a complaint which usually attacks but one or two bones at the same time, and also by the consideration of the greater predisposition to caries, which characterizes the anterior portions of the vertebrae, where it is almost universally far advanced, before the sides are materially affected. It follows, then, that for the most part the lateral curve here arises from the same cause as when it exists alone.

The natural curves of the spinal column, and the natural obliquity of the pelvis, in angular curvatures, is always nearly or completely obliterated. The position of the pelvic cavity, particularly if the projection is in the loins,

* As a remarkable fact, I would mention that one of these cases, a patient affected with severe angular disease conjoined with a lateral curve, when she first came under treatment was *enceinte* with her eleventh child, after having borne ten during the twelve previous years. She was at this time thirty-two years of age.

becomes nearly horizontal, and satisfactorily accounts for the rapid deliveries, which are reported as so frequently taking place among women affected with this form of ankylosis.

In respect to the frequency of caries in the cervical region, as compared to those instances in which the dorsal or lumbar vertebrae are attacked, I find but few data upon which to base statistical inquiries. Thus, in Duval's 116 examples of carious vertebrae, there were 5 only in which the complaint was in the cervix. Nichet reports 33 cases, in 6 of which this was the part affected.

In the 123 cases of angular projection from caries, of which I have notes, 8 had the disease in the cervical vertebrae. In 3 of these, the chin rested on the sternum, in 1 only was the head drawn backwards. In the majority, the disease was at the root of the neck, in the fifth, sixth, or seventh vertebra.

These latter have been uniformly marked by the peculiar and characteristic symptom to which I have referred, the head appearing as though it had sunk or been driven down, wedge-like, between the shoulders. I have, likewise, constantly noticed that there is a peculiar respiration attendant on this form of the complaint. It is noisy, hurried, and at times painful, yet it is quite different from the kind of respiration to which we usually apply the term dyspnoea. I have, therefore, avoided the use of this term in speaking of the symptom.

When the upper dorsal are affected, there is not unfrequently disturbed respiration, although not usually to the same extent. In many instances it is apparently independent of any diminution of the costal cavity. It exists where the capacity of the chest has been but little, or not at all infringed upon, and owes its origin, either to some functional derangement of the nervous system, or, undoubtedly, in a certain number of cases, to undiscovered purulent effusion accumulating in the posterior mediastinum, separating the pleura from its natural adhesions, thus producing a pressure upon the thoracic viscera; the cause of which may not improbably be overlooked, or not receive due consideration. The reflex functions of the spinal nerve, as concerned in the act of respiration, have appeared to me, even at an early stage of cases of this description, often decidedly impaired. Upon such a supposition only can I account for the fact, that a considerable amount of voluntary effort is necessary to the due performance of the respiratory process. If this act of volition is withdrawn, as in sleep, or when the mind is intent upon some object of interest, we have noisy respiration, each expiratory act being accompanied by a distinct or smothered groan, which is in truth painful to hear, but of which the individual himself appears almost unconscious. This phenomenon has frequently attracted my attention, although I am not aware that it has been elsewhere particularly remarked upon.

By far the most common seat of caries of the spine, is the bodies of vertebrae, particularly the anterior portion. Mr. Potts says that it is always thus limited in its effects, seldom or never implicating the articular processes.

Mr. Lawrence states that "this disease attacks only the bodies of the vertebrae;" and that "the processes, which are composed of firm, or compact bony tissue, it does not attack." Other cases, however, besides the one at the commencement of this article, could be cited; and there are one or two specimens in the cabinet of the "Boston Society for Medical Improvement," which prove that the transverse processes and laminae are not exempt from the inroads of this disease.

I have seen two cases, and two only, in which the appearances during life were such as would seem to indicate carious destruction of the posterior part of the vertebra, in the articular processes, or their vicinity, while the anterior remained in the normal state. In the first, one of the spinous processes, in the other, two, had sunk from their original level, appearing to have slipped forward, as well as downwards, approximating the one below; and the depression, which was well defined, would be thus explained. After due consideration, however, the appearance in question may be accounted for on the more plausible conjecture, that, instead of posterior destruction, there was relaxation of the ligaments, and swelling of the intervertebral substance anteriorly, sufficient to separate to a considerable extent the front part of the bodies of the vertebrae, producing the effect described. These cases stand alone, and the true explanation can only be ascertained by the future course of the disease, or by a *post-mortem* inspection. In one, there was angular disease above the depressed spot, with the counterbalancing anterior curve, always present to a greater or less extent. In both, there were well-marked manifestations of serious injury inflicted on the spinal nerve.

Of destruction or fracture of the odontoid process of the dens, as the result of disease, I have been able to find the record of but three cases. Ollivier, Delpech, and Sir Astley Cooper, describe each one case. Ollivier, in the first volume of his able and comprehensive work, *Traité des Maladies de la Moelle Epinière*, relates a case somewhat similar to that of young Burr, above narrated. The disease, however, was not so extensive, being limited chiefly to the destruction of the process and its ligaments. There was, likewise, spontaneous luxation of the upper cervical vertebra, accompanied by a gradual relaxation of the capsular ligaments, but no general paralysis. The head was so strongly flexed upon the chest, that the skin of the neck formed deep folds under the chin, and there was an angular projection formed by the spinous process of the axis. This writer states that the case he describes was the only one which had come to his knowledge.

Delpech's case,* is that of a soldier in the Hôpital St. Eloi, who had an angular inclination of the head on the chest, where it was held by the will of the patient, as far as possible, completely motionless. He died suddenly from his head falling backward one morning, when he was raised to have his bed made. The body of the axis, and its process, was almost completely destroyed.

* De L'orthomorphie, par Rapport à L'espece Humaine, vol. i. p. 247.

Sir Astley Cooper* mentions the case of a woman in the venereal wards of St. Thomas's Hospital, who, while sitting in bed eating her dinner, was observed to fall suddenly forward. The patients, on hastening to her assistance, found that she was dead. At the autopsy, it was ascertained that the dentiform process was broken off, and the head, in falling forwards, had forced the root of the process back upon the spinal marrow, which occasioned her instant dissolution.

In concluding this paper, I would remark that it was far from my intention to write a treatise upon the subject to which it relates. I have here briefly alluded to but one of the several branches into which derangements of the spinal system, osseous and nervous, may be divided. This branch, with others, may be more fully discussed at some future opportunity, when more extended clinical and pathological observation shall have opened the path for a complete and thorough investigation of the various guides by which accuracy in our etiology, diagnosis, and prognosis may be attained, and to the benefit which is derived, and which we may expect to derive, from appropriate treatment.

ART. IX.—*Case of Accidental Poisoning with half an ounce of Tartar Emetic, successfully treated with Green Tea and Tannin.* By STEPHEN A. MCCREERY, M.D., U. S. N. (Communicated by THOMAS HARRIS, M.D., Chief Bureau Med. and Surg., U. S. N.)

ON the morning of the 28th of September, 1852, Dr. — feeling a little indisposed took twelve grains of blue mass. At half past two o'clock P. M., some hours later, he took on an empty stomach what he believed to be (and what he had ordered) half an ounce of Rochelle salts with forty grains of bicarbonate of soda and as much tartaric acid. Immediately afterwards he dined sparingly on ham, the breast of chicken, and tomatoes, and after dinner ate two ripe figs. In about thirty-five or forty minutes after taking the medicine, he experienced some nausea, but attributing it to his indiscretion in having eaten so soon after taking the powder, he resisted the disposition to vomit which every moment became more urgent. In the course of four or five minutes, however, he was obliged to yield to it, and vomited twice very freely, after which he felt relieved. In two or three minutes the nausea and vomiting returned, and he then began to suspect that he had received the wrong medicine. Instant inquiry was made, and it was discovered that the person who had put it up had mistaken the *antimonii et potassæ tartras* for

* Dislocations and Fractures of the Joints, p. 463.

the *sodæ et potassæ tartras*. Dr. Thomas Williamson, of the Navy, saw the patient at twenty-five minutes past 3 P.M., and immediately ordered for him copious draughts of green tea and large doses of tannin. Albumen, the infusion of flaxseed, and of the slippery elm, and iced water were also freely administered. The vomiting, which was very distressing, continued with little intermission until 9 or 10 o'clock in the evening. There was also very severe purging with most violent cramps of the legs, and slighter ones of the wrists. The first evacuation from the bowels was purely serous; those which followed were of a bilious character, but very loose. There were no cramps of the stomach. When it was thought that the stomach and bowels had been cleared of the poison, an injection containing tincture of opium was given and repeated in a few moments. The injections not being retained, a full dose of the acetate of opium was administered by the mouth. Brandy mint julep was also freely given as the patient was very much prostrated. A large sinapism was applied over the epigastric region, and frictions were used to the extremities during the paroxysms of cramp. Iced tea and iced mucilaginous drinks were continued through the night.

September 29. The patient passed a better night than could have been expected; was still nauseated, and complained of great thirst, and had some headache; the tongue was moist; there was no abdominal pain or soreness, or any burning sensation about the stomach; the bowels were twice moved. Iced tea, and iced milk, and arrowroot diet were directed.

30th. There was no vomiting or purging; no thirst; diet and drinks were continued as before.

October 1. Rested badly the past night. Had headache and nausea, and the tongue was coated with white fur, but there was no febrile excitement. The iced drinks were continued, and toast, and coffee, chicken broth, and oyster liquor were allowed the patient.

2d. There was some slight irritation of the mucous membrane of the throat, and pain on pressure in the upper and right side of the breast; no fever. A sinapism was applied over the seat of pain, and the slippery elm bark and gum Arabic were used to allay the irritation of the throat. The diet and drinks were continued.

4th. There was still some slight irritation of the throat, and some cough, but no pain in the chest nor fever. The patient was allowed full diet. From this date he continued to improve, and on the 13th was able to resume his ordinary occupations.

ART. X.—*Obstetrical Cases.*—By ISAAC G. PORTER, M. D., New London, Ct.

CASE I. *Ovarian Pregnancy.*—To those who are familiar with M. Pouchet's splendid work, *Théorie Positive de l'Ovulation Spontanée*, it need not be said, that he absolutely denies the existence of ovarian pregnancy. His language is: "I have no idea of an ovarian pregnancy, as understood by writers, that is to say, a development of an ovulum, still contained in its Graafian vesicle; and which, by its development, engenders a fœtus, inclosed within the very ovary itself." Churchill and Meigs, however, incline to admit its existence, and refer to a case recorded by Dr. Granville (*London Philos. Trans.*, 1820) as being strongly confirmatory of the position. The following instance of recent occurrence is, to my mind, quite as satisfactory:—

July 15, 1852. A married lady, twenty-eight years old, mother of three children, the youngest two years of age; and who, until within a few days, had been in perfect health, was this morning attacked, while stooping, with excruciating pain in the left pelvic region, extending upward as high as the kidney. Within half an hour the pain in a great measure subsided; and, under the influence of two grains of opium, entirely ceased. On the day following she was about the house; the seat of pain, however, remained tender.

21st. Another attack of pain was experienced, more violent and continued than the first, extending upward towards the kidneys, and through the back, resembling, in some of its features, nephritic colic. This suspicion was strengthened by the fact that for some days past the urine has been high-coloured, and deposits a lateritious sediment. No pain or numbness, however, extend down the corresponding thigh. Pulse nearly natural as to frequency, but weak and soft; the patient, mean time, rolling about the bed, dripping with cold perspiration. Powerful anodynes and sinapisms were resorted to, as were alkalies, directed to correcting the lithic diathesis.

25th. Patient had been so comfortable as to sit up most of the day; and, though some pain and tenderness existed, was dismissed from further attendance. To-day, however, she was similarly attacked for the third time. Pain excessive, and prostration so great that stimulants in large quantities became necessary to prolong life. Distress chiefly in the left side, extending, however, over most of the abdomen. There was also retention of urine; and now, as for two days previous, a slight sanguineous discharge from the vagina. About twelve hours from the attack a powerful reaction occurred. More or less tympanitis existed from the first, but calomel, castor-oil, and turpentine operated kindly, with large gaseous discharges. The faintness gradually became more profound, and reaction less efficient. In full possession of her mental faculties, death, from anæmia, occurred about thirty hours from the commencement of this last attack.

Autopsy.—Present, Drs. N. S. Perkins, Manwaring, and Hobson. Abdomen prominent, and slightly tympanitic. On making the first incision, bloody water gushed out, and, on continuing the dissection, the left side of the pelvis was found full of clots and blood, probably in all forty ounces. The left ovary was enlarged to the size of a very small hen's egg, of a "black roddish" hue, and adhering to its right side were clots of blood. On removing these, and making a slight incision, a small quantity of water escaped, followed by

a foetus of perhaps the sixth or seventh week, its size being about that of a honey-bee. The Fallopian tube was found floating freely in the cavity of the abdomen, and was pervious to the probe, showing that the sanguineous vaginal discharge, which occurred during her illness, probably passed through it to the uterus.

Until three or four weeks before the death of this patient, the catamenia had been regular, and their cessation, at that time, was suspected to betoken pregnancy. About the time of their non-appearance this person, being half a mile from home with her child, two years of age, and a violent thunder-storm approaching, ran the whole distance, with her child upon her left hip, ascending, in the latter part of her course, a steep hill. On reaching the house she was nearly breathless, and professed never to have felt quite well afterwards.

In opposition to M. Pouchet's theory, Dr. Meigs has these words, which, in connection with the fact just named, go far towards explaining the *modus operandi* of ovarian foetation: "Let us suppose the impregnation to have been effected, then some change of position covering the porule with a peritoneal superficies, allowing of adhesion, the ovulum would necessarily be shut up in the crypt or cell, which, having now become a shut sac, development of the germ would go on, absolutely in the interior of the ovulum, and Granville's fact, for facts are stubborn things, would be explained, without at all shaking the conclusions as to the *oviponte*."

Instances of extra-uterine foetation, including tubular, interstitial, and ventral, are not very rare on the pages of medical literature; but authentic cases of *ovarian* pregnancy are decidedly so. The earliest on record, according to Churchill, was communicated by the Abbe de la Roque, in 1682: "The right ovary was enlarged to the size of a hen's egg, and lacerated through its whole length. The foetus was found in the abdominal cavity, in the midst of a large quantity of blood."

CASE II. *Twins with Impacted Heads*.—A young married lady, twenty-one years of age, was threatened with premature confinement of a first child, at the eighth month. She had been suffering from alternate pains for two days before professional assistance was sought; and was at that time feverish; pulse 120, with dyspnoea, and a short, dry cough, which had existed some weeks. On examination, both feet of a child were found presenting high in the vagina. The pains seemed effective and agonizing, still little or no progress was made. Soon gentle traction was used, with but slight effect. This was moderately increased, but it was three hours before the body was delivered as far as the head. No force that I was willing to exert had the least effect on it (the head), which seemed immovably fixed. The cord had of course ceased to pulsate; the pains were propulsive, and the uterus, though somewhat larger than might reasonably be expected from the presence of merely the head, yet was rigidly contracted into a hard ball. The case was anomalous and alarming, and the assistance of Dr. Perkins, our oldest obstetrical practitioner, was sought. Novel and obscure as the case was, we doubted whether the head was immensely hydrocephalic, or whether it was retained by being jammed between a very protuberant sacrum and the pubis. The parts

were so tender that a thorough internal examination was utterly impracticable. It was agreed that we were authorized to displace it by a careful application of the forceps to the retained head. My friend raising the body of the child, I introduced my finger far enough between the head and the soft parts to guide the instrument, but the pelvic curvature of the blades being considerable, they applied themselves to the head of *another* child, lying above the pubis; and, with the exertion of moderate force, it (the head) descended, the body of the first child, in the mean time, slightly ascending in the vagina. For a moment the case seemed more perplexing than ever; but, while deliberating on the proper course, a most powerful propulsive pain came on, which resulted in the immediate delivery of the body of one child, and soon after of the retained head of the other. The patient was, of course, much exhausted, but sustained no other injury to the soft parts than the slight rupture of the perineum which so frequently occurs in first labours, and which, in this case, was perfectly restored in less than a week. But the fever and cough which had existed for sometime previous to confinement, continued; little or no milk was secreted; and, after an illness of three months, she sank from pulmonary tubercular phthisis.

Long-continued traction on the neck of the first child had materially diminished its size and firmness, so that it furnished no great impediment to the passage of the head of the second child.

Such cases, it is believed, are extremely rare; but, that others may be prepared for them, this sketch has been drawn up. A similar one, however, has been transferred to this journal (vol. x. p. 238) from the *Neue Zeitschrift für Geburtskund.* "The body of the first child, which presented the knees, had been delivered, and its head was retained by a second child, the head of which had descended with that of the first, into the pelvis, which was very large. After some efforts the accoucheur succeeded in delivering both children, and the mother and one child did well."

CASE III. *Vicarious Menstruation.*—The subject of the following case came under the writer's notice shortly before the birth of her first child, in August last. She is a married lady, twenty-three years of age, and menstruated for the first time when seventeen years old. The discharge was scanty, and almost simultaneously with its cessation, a small elevation, like a "blood-blister," made its appearance, between one and two inches above the crista of the left ilium, and for about twenty-four hours discharged pure blood. This occurrence has returned, from that time, monthly, though not with the absolute regularity of the usual discharge. The first intimation that she is to be unwell, is a sense of pain and soreness in the region above indicated. This increases until she is uniformly obliged to take to her bed. Sometimes it is some days before the discharge commences, which occurs much as the serous discharge of a blister; and, after remaining open about twenty-four hours, the denuded surface speedily dries up and desquamates, leaving a slight pit or depression. One collection remained closed three weeks, causing extreme distress and delirium, and while she was tossing about the bed it broke, and gave issue to a large quantity of offensive blood. Her health was excellent until after she "made the change," since which time, until the birth of her infant, in August, it has been infirm. It should be noted, that on an average of once a year she has had a sanguineous vaginal discharge, occurring sometimes with, and sometimes without, the vicarious excretion. Were it other-

wise, the case might be cited as proving that inasmuch as pregnancy occurred the oviponte goes on, independently of a sanguineous uterine flow. During her pregnancy, the menstrual nixus showed itself regularly after the fourth month, from the surface of the left iliac region; and, on more than one occasion, seriously threatened premature labour. Her recovery after confinement was favourable, and thus far (December, 1852) she has not only been free from this abnormal excretion, but has enjoyed excellent health.

I cannot learn that any active and judicious efforts were ever made to restore the normal discharge. While the case is interesting as showing the resources of the constitution, it is presented rather as a pathological curiosity than for any practical advantage.

CASE IV. *Pseudo-Membranous Inflammation of the Vagina.*—This case is an exemplification of well-established principles in the pathology of mucous membrane; principles every day exhibited in the membraniform secretion of croup, less frequently in the disease called diarrhoea tubularis, where perfect casts of the intestinal canal are thrown off, as the result of gastro-enteric inflammation; and more rarely still in the form, position, and extent of the present affection.

An unmarried female, twenty-two years of age, of respectable family, was visited for retention of urine as the prominent symptom. It was discovered, however, while introducing the catheter, that the parts were hot, swollen, tender to the touch, and bathed in mucus; that there were constitutional symptoms, pains in the back, &c., denoting intense vaginitis. Very little water was removed by the operation, which was very painful. The case was treated by absolute rest, saline and other cathartics, balsam copaiba, and camphor, tepid mucilaginous injections, and, finally, by injections of nit. argent. grs. v, to fʒi. Within a few days, portions of membrane, from the smallest size to two inches in length, and one in breadth, began to pass from the vagina, and continued until the whole canal was desquamated.

This condition was undoubtedly superinduced by unlawful irritation, not only of the clitoris, but of the whole vaginal canal; whether as a consequence of the intense and indomitable itching, which often results from idiopathic inflammation in its first stages, or whether from less worthy motives, cannot be decided.

Ten days after her supposed recovery, this irritation was repeated, and all the former symptoms returned with violence. High inflammation of the urethra followed, attended by retention of urine. As before, there was constitutional irritation, pain in the back, nausea, and high nervous excitement, amounting almost to delirium. The vagina was much swollen, feeling hard and dry, like parchment. Continuing in this state for a few days, it gradually became moist, and subsequently softened into a scruffy, bran-like exudation, which could be easily removed with the finger. As the amount of moisture increased, the matter became slightly adhesive and unctuous, like softened Castile soap. After an illness of ten days, she passed entirely from our notice, and we are unable to say whether any subsequent adhesions followed.

ART. XI.—*Case of Curious Inflammation and Hypertrophy of Womb.*

By CHARLES D. MEIGS, M. D., Professor of Obstetrics and Diseases of Women and Children in Jefferson Medical College. [With a plate.]

I BEG leave to hand you a drawing, representing, with much faithfulness, the appearance of a preparation in my cabinet at the Jefferson Medical College.

I trust you will deem it of sufficient interest to deserve a place in your valuable journal. To me it is interesting as exhibiting appearances that have not been described, so far as my information enables me to speak, and as showing why the ordinary modes of treating affections of the uterus must sometimes result in disappointment. I here allude to the treatment of chronic inflammation of the os and chururgical neck of the womb, by topical bleeding with leeches, and by the application of various escharotic articles.

Most generally, the practitioner is satisfied that his duty is fully done by cauterizing the parts just named with the nitrate crayon, or with a solution of nitrate of silver, or acid nitrate of mercury, conveyed by means of a camel-hair pencil, a plumasseau of lint, or by vaginal injection. And true it is that when these means are judiciously employed, the happiest effects are generally found to ensue as to the re-establishing of the patient's health.

The drawing represents a womb which is rather more than four inches in length, while its greatest breadth is over three inches. Its thickness is excessive; in short, the disease of its interior walls has developed a state of hypertrophy of the organ, as is evidently the case when we compare it with the normal womb, two and a quarter inches long, by one and three-quarters wide, and half an inch thick.

A medical man having charge of a case like the one here represented, and examining it by the touch, and also by means of the metroscope, would be sure to discover upon the os tincæ, and within the os, those appearances usually denominated *inflammation framboisée*, or raspberry-coloured inflammation of the os. He cannot possibly diagnosticate the condition of the tissues lining the canal of the cervix uteri, because they are inaccessible; and should he expect a cure by repeating his contacts with the nitrate crayon, &c., he could not fail to be disappointed, since his antiphlogistic or his destructive cauterizations would not even approach the points where their therapeutical power is most needed.

I do not pretend to say that, in a case like the present, any mode of treatment devisable by the physician could be relied upon; for it appears that the changes in the character of the tissue are so great as to leave little prospect of a happy result of the treatment, however judicious.

The drawing exhibits a section from the fundus to the os, laying open the cavity of the womb proper, and also the whole canal of the cervix.

If you will look at the cut surface, you will see that it has, near the inner wall, the appearance of a collection of pencils or brushes, the extremities of which look into the cavity. One might almost suppose this striated or pencil-like tissue is an enormous hypertrophy of the tubular glandules of the uterus, described by Mr. Goodsir, Prof. Coste, Sir Franz Kiwisch, and others; and I think it probable that such is the fact. Be this as it may, the metroscopic examination of it would scarcely fail to mislead one as to his prognosis, at least under the ordinary modes of treatment.

I repeat that an assured diagnosis is impossible. Nevertheless, let the physician, in doubtful cases, nay, in all cases, determine the real longitudinal diameter of the womb. If that be not augmented considerably, the case will not be like this one. If it be augmented, with all the signs of a general hypertrophization of the organ, then let him make use, not of the brush, the crayon, or the vaginal injection, but of the port caustic of Prof. Lallemand, by means of which he can make contacts of nitrate of silver as he may prefer; I mean whether merely antiphlogistic ones, or destructive and disorganizing ones. This he can effect by regulating the duration of the contact, or by the quantity of the salt with which the groove in the platinum rod shall be provided.

As I presume the drawing may be understood without farther description, I shall now bring this notice to a close, assuring you of the respectful regard of, dear sir, your obedient servant.

C. D. MEIGS.

To Dr. HAYS.



REVIEW.

ART. XII.—*The Transactions of the American Medical Association.* Instituted 1847. Vol. V. Philadelphia, 1852: 8vo. pp. 940.

THE present volume of *Transactions* is the most interesting and valuable of the five that have been issued by the Association. The change made in the character of the principal committees, at the session of 1851, has worked well; although reports were received, at the last session, from but a few of the committees on special scientific subjects, which have taken the place of the former committees on the progress of the several departments of medicine, these reports will be read with deep interest, as well on account of the importance of the subjects embraced in them, as from the able manner in which the respective subjects are discussed. Were the Association to effect nothing further than the production of a series of reports similar in character to those contained in the volume before us, in reference to all the subjects referred to special committees at its last two sessions, its organization will not have been in vain.

It is to the scientific papers contained in the present volume of *Transactions* that we shall principally direct our attention on the present occasion; glancing only at the operation of the Association in the furtherance of its primary object; namely, the elevation of the character of the medical profession, by promoting a more thorough education of those who are destined to fill its ranks, and the inculcation among its members of a strict code of ethics. We are aware that, by a few, it is denied that the action of the Association has, or can have, any beneficial influence in reference either to medical education or the internal polity of our profession. A different conclusion, however, has been arrived at by those who have watched, without prejudice, the actual working of the Association. They believe that much good has already been effected by it, and that ultimately it is destined to bring about all the reforms it was organized to achieve. It has not, as yet, it is true, been able to give to medical education in the United States that extension and fulness which is desirable, nor has it reformed all the evils under which our profession labours. It has, however, called, and is still calling into effective operation, the means by which alone the ends at which it aims are to be attained. By bringing together the leading members of the profession to consult upon the measures calculated to promote its general good; by encouraging a systematic organization of the regular members of the profession throughout the United States, as well for the cultivation of a community of interest, as for the collection into a common fund, available to all, the personal experience and observations of each practitioner; by discouraging the admission to pupillage of illiterate and incompetent persons; and by directing its influence to enlarge the sphere and render more complete the system of private instruction, the Association have been laying a broad and permanent foundation, upon which may be securely based, hereafter, the entire reform it desires to effect.

The mere agitation of the subject of medical education, which has been brought about by the action of the Association, has been productive of good; that it has already exerted a beneficial influence, even upon the schools that

have rejected the recommendations of the Association, can scarcely be doubted. That a very decided improvement in medical education has taken place in this country, within the last five years, is very certain; by what means this improvement has been effected, is a question in relation to which much difference of opinion is to be expected; for ourselves, we feel no hesitancy in ascribing it, in part at least, to the action of the Association.

An error was no doubt committed by the Association in directing its first efforts to a reform of the medical schools. From these latter but little is to be expected, until the great body of the profession are prepared to yield their support to a more complete and extended system of medical education, and to oppose the admission into its ranks of every one upon whom the doctorate has been conferred without such an examination as shall fully test his qualifications to assume the responsible duties of a practitioner of the healing art. So soon as the profession are prepared to demand of the schools an adequate enlargement of their courses of instruction, and a strict fulfilment of their duty in the graduation of those alone whose competency shall have been fully tested, but not before, will they come up to the standard required of them. The reformation of the schools must necessarily be secondary to that of the profession at large.

One of the most important of the questions discussed at the last session of the Association, is that in relation to a change in its constitution, by excluding from it all but delegates regularly appointed by County and State Medical Societies. It is all-important that every portion of the profession throughout the United States should be fully and fairly represented in the deliberations of the National Medical Association, and this would perhaps be most certainly obtained, provided there existed a proper and efficient organization of County and State Societies in every portion of the Union, by restricting to these bodies, as has been suggested, the appointment of delegates. But with the present limited and defective organization of the profession in many parts of the country, such a restriction would be premature, and instead of working satisfactorily, would for some time to come exclude from representation the entire body of practitioners of many sections of the Union. But even if this were not the case, there are good reasons why the medical Faculties of our schools should be admitted to representation in the Association. These reasons are clearly set forth in the report of the majority of the Committee to which the subject was referred at the session of 1851.

"Among the prominent objects of the Association," remarks the Committee, "are the improvement of medical education and the elevation of the standard for the doctorate, and measures for the achievement of these aims must affect the interests of the medical colleges. The professors in them, moreover, have become familiar with the practical working of our system of education, its advantages and defects, and, from their experience and attention to the subject, must possess information which it may be most important for the Association to be able readily to elicit, in order that the reforms which it may endeavour to accomplish shall be practicable as well as desirable. Equally important, then, is it to those institutions, and to the Association, that they should be represented. To the former, that they may have the opportunity of defending their interests; and to the latter, that it may legislate with the knowledge necessary to render its measures judicious and fruitful.

"Further, if the colleges have the favour accorded to them of pleading their own cause, they can with the less grace and propriety refuse to comply with the recommendations and requirements of the Association."

After showing that the present ratio of representation possessed by the medical schools is too large, and calculated to give to their delegates a pre-

dominant influence over the action of the Association, the Committee remarks:—

"It is but right, therefore, that the ratio of representation accorded to the schools should be reduced; and it might also, with great propriety, be made contingent upon their compliance with certain conditions. By the adoption of this plan the Association will acquire some authority over the schools; and if, in the aid of this, those members, who annually so earnestly advocate improvement in medical education and the elevation of the standard for the doctorate, will as sincerely and zealously exert their influence in favour of those colleges which concur in carrying these reforms into effect, the recusant schools will soon find that a regard to their own interests, of which they have never been unmindful, will require them to abandon their opposition to the wishes of the profession."

But one of the prizes offered by the Association was awarded at the last session. The successful essay is by Dr. AUSTIN FLINT, of Buffalo, N. Y., *On Variations of Pitch in Percussion and Respiratory Sounds, and their Application to Physical Diagnosis.*

Sixteen communications were received by the Committee on Prizes; two were not examined, one because the name of the author was made known, and the other because it was not sent within the time specified.

Of the thirteen rejected essays the Committee remark that they

"Were of various merit, and some of them highly creditable to the ingenuity, industry, and acquirements of their respective authors, but none of them were deemed by the Committee to have enlarged the boundaries or supplied the deficiencies of medical science, or to have contributed to the establishment of medical truth, in so high a degree, as to entitle them to the award of the premium of the Association."

The prize essay of Dr. Flint is unquestionably one of very great interest, and if the deductions of the author shall be verified by a more extended series of observations, he has conferred a very material benefit upon the medical profession, by directing attention to variations in the pitch of sounds heard in the practice of percussion and auscultation as a means of increasing the value of the physical signs of pulmonary disease in their application to diagnosis, and of rendering them more readily available for practical purposes.

Dr. Flint very properly remarks, that

"The pitch modifications of sound opening a field of study in physical exploration as yet but little cultivated, and to which, so far as relates especially to auscultation, his attention has but recently been directed, propriety and prudence dictate, not only caution for the deductions from a somewhat limited number of data, but a certain amount of distrust in a kind of observation in which the liability to error cannot be at once fully estimated."

In view of these considerations, Dr. Flint presents the conclusions advanced in the essay before us, "as propositions to be confirmed by further researches." His object being, "in a great measure, to invite the investigations of others in the same direction."

The essay of Dr. Flint is divided into two sections, which treat, respectively, of attention to pitch of sound in the practice of percussion and auscultation—with a consideration of the variations in the pitch of sounds in healthy respiration, and in percussion and respiratory sounds during diseases of the chest. A series of clinical observations, embracing a synopsis of the characters of respiratory sounds relating to the subject of the essay, are presented as an appendix.

To understand fully the scope and appreciate the value of the observations

of the author on variations of pitch in percussion and auscultation, and the application of these variations as a means of diagnosis, the entire essay must be read with attention; we can present only the following summary of the more important practical deductions submitted in the second section:—

"1. In the second stage of pneumonitis, the inspiratory sound is high in pitch, followed by an expiratory sound which is frequently, if not generally, higher in pitch than the sound of inspiration, these traits being found in conjunction with more or less of the other characters which belong to the bronchial respiration.

"2. In cases of small tuberculous deposit, or incipient phthisis, the most striking modification of the respiratory sound is the elevation of pitch. This elevation of pitch is an important element of what is generally known as the *rude, rough, or harsh* respiration. If an expiratory sound be appreciable under these circumstances, it may be as high, or higher in pitch than the sound of inspiration, and the variation of pitch in the former is greater, inasmuch as the pitch of expiration in the normal vesicular murmur is lower than that of inspiration. Elevation of the pitch of expiration, therefore, may be found to be valuable as a sign of incipient phthisis in some cases in which the variation in the inspiration is not marked.

"3. If the tuberculous deposit be more abundant, the pitch of respiration is in a more marked degree elevated. The expiratory sound, if appreciable, will be likely to be as high, or higher in pitch than the sound of inspiration. More or less of the other characters of the bronchial respiration are at the same time present.

"4. In pleurisy with effusion, the pitch of respiratory sound is elevated, in conjunction with more or less of the characters of the bronchial respiration, over the parts of the chest lying above the compressed lung. In cases of large effusion, after its complete removal by absorption, the affected side may continue to present a variation in pitch, the symmetry of the two sides being permanently impaired, in this respect, after the vesicular quality of respiration is regained.

"5. In cases in which tubercle has advanced to the stage of excavation, the site of a cavity of considerable size is indicated by a blowing sound, low in pitch, with an expiratory sound (if appreciable) lower in pitch than the sound of inspiration. These traits constitute the elements of the cavernous respiration, and the cavernous respiration is the most constant and reliable of the signs of an excavation.

"If the cavity be very large, or there are several cavities, the respiration may be modified to such an extent that, on immediate auscultation over the whole summit of the chest, it may present the cavernous characters. This may be the case while dulness on percussion shows the existence of more or less solidification in connection with the cavities. The coexistence of relative dulness on percussion, and a low pitched blowing respiration, denote the predominance of excavation.

"The cavernous respiration may also be present in cases of excavation from circumscribed gangrene, and in pneumothorax with perforation.

"6. In arrested phthisis, the traces of the disease may be manifested by a permanent variation in the pitch of respiration, in connection with more or less dulness on percussion at the summit of the chest on either side."

Four reports were received from the committees on special scientific subjects. The first of these is *On the Blending and Conversion of Types in Fever*, by SAMUEL HENRY DICKSON, M. D., of Charleston, S. C.

Dr. Dickson has treated the subject referred to him in a very masterly manner; his general conclusions are cautiously drawn, and bear the marks of truth; while he admits that the types of fever of a very dissimilar origin and character may become blended together in the same case, and that one type may be substituted for another; he denies that the *conversion*, strictly speaking, of one type of fever into another can, under any circumstances, take place.

Dr. Dickson refers to the very loose and indefinite manner in which the

term type, when applied to fevers, has been employed even by the most distinguished medical authors. It has been made use of to express promiscuously all the varied relations of this class of diseases, "some of which are those of strong resemblance and close affinity, others again of marked dissimilarity, and others still, of almost absolute contrast." Although not prepared to offer exact limitations to the use of the word type, it must, he considers, be understood always to convey some marked distinction, lying deeper than the general relations that connect the subjects treated of. While, he remarks, we may still dispute whether typhus and typhoid fevers differ essentially, no one will confound scarlatina or a tertian intermittent with either.

"We are persuaded," he says, "that the truth will, on examination, be found in the following propositions: 1. That each type, or marked variety of fever is the result of a definite cause, relevant in its properties, characters, and mode of action, to the effects produced, however obscure this relevancy may be, and ill understood, in the present state of our knowledge. 2. That these causes, varying greatly in nature, must be sometimes similar, sometimes dissimilar, and sometimes contrasted or opposite in the character or mode of their efficiency. 3. That causes of different kinds may sometimes coexist. 4. That when they resemble each other, their effects or influences are really *blended* and mingled and interchanged, as one or the other may predominate. 5. That when dissimilar causes coexist, they may sometimes act together, but not often; may sometimes blend their influences, but not readily or freely; they may possibly supersede each other by *substitution*, but in no imaginable instance can the effect of one cause be the effect of another and dissimilar cause. This sort of transformation, the only true conversion in the logical sense, is a rational impossibility, whether we regard diseases materially and ontologically as entities, or pathologically and dynamically as mere affections of the organism arising out of precedent impressions from causative agents. We do not deny the difficulty of distinguishing practically, such substitution from conversion so called, we desire only to express our meaning precisely, in order that our views may be clearly understood."

"The records before us present numerous examples of the *blending* of types of fever—the intermingling of characteristic features. This is a phenomenon by no means rare; it is for the most part easily explained, and the coexistence of more than one cause may usually be indicated to account for it.

"There are also abundant instances, related upon sufficient authority, in which one form or type takes the place of another which has preceded it. This, which we shall describe and comment upon, is the *conversion* of common phraseology. We have said that we believe it to be correctly substitution, and not transformation; but we have no objection to the employment of the above term, so convenient, so much more familiar, and, indeed, so indicative of the change that has occurred."

Dr. Dickson supposes, therefore, some special relation to exist among fevers apparently derived from the same source that implies their convertibility, and believes that it is just as reasonably to be inferred that fevers thus connate are *exclusively* interchangeable; those which arise from distinct causes, not being thus related, are not convertible.

The periodical fevers, which are referable to a common origin, and connected by a history of common properties, are referred to as notoriously mutable or convertible; the remittent may subside into an intermittent, the intermittent being aggravated into a remittent, a quotidian falling into a tertian or a quartan, and these becoming duplicated, complicated, or exasperated into quotidian frequency.

Continued fevers, while they are strongly contradistinguished from the periodical by many remarkable points in their history and character, are, also, closely allied to each other, so that the true diagnosis of the several

varieties distinguished by name is still warmly disputed. These, likewise, mingle and run into one another by blending and interfusion, as might fairly be inferred from the prolonged disputes as to their identity, and differences, and mutual relations, whether of resemblance or contrast.

"The exanthemata," Dr. Dickson remarks, "form a class of fevers which at first sight would appear to be palpably and obviously separable from all other types. But a more careful examination will show that even here it is not easy to establish entirely, and preserve unfringed, clear boundary lines between neighbouring and connate maladies. The characteristic features, indeed, of the eruptive fevers, are so far unsettled that we find pathologists of high reputation including under this head all the continued and some of the uncertain types. Both typhoid and true typhus have been arranged here; yellow fever, which has been assigned a position on almost every column of the nosological catalogue, is pronounced by Hildenbrand to be an exanthem; cholera asphyxia is thus regarded by Parke, Simon, and Horner; and dengue—by some merged into the ranks of the malarious remittents, by others classed with yellow fever, and by Cooke and Copland recognized as a variety of scarlatina—is, to say the least, more closely affiliated here than anywhere else."

Dr. Dickson assumes the establishment of the following distinct types of fever:—

"1. The periodical; including (after Bartlett) the intermittent, remittent, and congestive.

"2. The continued; comprising typhoid, true typhus, simple fever, ephemera, febriculæ, British epidemic fever, relapsing fever.

"3. The exanthematous; variola, scarlatina, measles, dengue.

"4. Yellow fever; the 'hæmagastric pestilence' of Copland, *causus* of Mosely, typhus icterodes of Cullen, malignant remittent of Rush.

"5. Catarrhal fever, known when epidemic as influenza."

The question as to the blending of these several types is very fully and satisfactorily discussed. The subject of the apparent conversion of the types of fever is next considered.

"The examples above given of the mingling and interfusion of symptoms of two or more forms of fever," says Dr. Dickson, "differ among themselves in the greater predominance of one morbid influence or another in the several cases. Of numerous attacks which commence in the same way, the course, history, and ultimate termination may be strikingly diverse. Invading with the ordinary symptoms of climatorial, autumnal bilious fever, one shall retain its periodical malarious character, ending, as it begun, with the features of a simple remittent. Another, losing these features in a protracted course, shall grow more and more continuous, and, ultimately, put on all the appearances of maculated typhus, with dry, dark tongue; mouth, teeth, and gums blackened with sordes; or present the meteorism and abdominal disorder of typhoid, with intestinal ulceration shown *post mortem*; and a third shall sink promptly into profound collapse, dying with orange-yellow discoloration of skin and eyes, and black vomit. If we suppose these to have been all struck down by malaria, in a locality infected by the coexistence of the three morbid poisons, it is easy to imagine some of them to come under the influence of ochlesis, the alleged source of typhus and typhoid, and others, strangers and predisposed, to fall victims to the obscure cause of the hæmagastric pestilence. We may correctly assume that, in all these, a temporary *blending* of types took place at a certain stage of their progress, under the conjoint influence of the several concurrent causes. As they advanced, however, the more intense or forcible influence would predominate; generally speaking, the malarious characteristics, periodicity, especially, would disappear, being substituted or supplanted by those of the more malignant poisons; a virtual and complete *conversion of type*. In this sense, then, we believe that conversion is not only possible, but frequent, and shall proceed to adduce in proof a few additional evidences."

One more extract from this interesting report must suffice; all we desire being to present to our readers a fair exposition of the general positions assumed by the author in reference to the blending and conversion of types in fever.

"If," Dr. D. remarks, "contagious diseases can be originated or generated under any contingency whatever, and no one can doubt the possibility of this occurrence, and if the matter of contagion is, as indeed it must be, a vital individuality, a self-multiplying germ, capable of indefinite reproduction, then the creation or development of this new cause must give rise to new results. A new form of disease now presents itself, which either *blends* with that which pre-existed, or supplants and *substitutes* it. If the causes of the two are connate and correlated, and in any degree similar or analogous in influence, *blending of type* takes place; the more especially if they are nearly equal or quite equal in force, and circumstances do not strongly favour either at the expense of the other. But if they be markedly dissimilar or contrasted, or in any manner incompatible, or if circumstances favour the one and repress the other, then there will and must happen the subversion of the first, the weaker or least tenacious; and *conversion of type* will take place, in the only sense possible and intelligible."

The second report is *On the Action of Water on Lead Pipes, and the Diseases proceeding from it*. By HORATIO ADAMS, M. D., of Waltham, Mass.

The subject of this report is a most important one. The conveyance of water through leaden pipes for all domestic purposes is almost universal throughout the United States, especially in the larger cities. The question, then, does the water thus conveyed become impregnated with any of the salts of lead so as to affect injuriously those who make use of it as a drink or in the preparation of food, is one in which every citizen is deeply interested. The conclusion to which the facts adduced in the report before us very clearly lead is, that, under certain circumstances, at least, water conveyed through leaden pipes does acquire poisonous properties, in consequence of which disease of a most serious and painful character is induced in those who drink it. That this deleterious action of leaden pipes upon water conveyed through them, when it takes place, is due to the latter being impregnated with certain chemical agents that act upon the lead, and form with it soluble salts, we should infer from the fact that a large proportion of the inhabitants of Philadelphia, have for nearly fifty, certainly for thirty years, been supplied through leaden service-pipes with the water used by them for all domestic purposes, and yet the diseases ascribed to the use of water impregnated with lead in Dr. Adams's report are certainly with us of very rare occurrence. Our physicians, it is true, meet occasionally with saturnine colic and paralysis from lead, but invariably under circumstances where the introduction of lead into the system is from sources altogether independent of the lead-transmitted water taken by them as drink.

In a most interesting report on the action of Cochituate water on lead pipes, and the influence of the same on health, by Dr. JACOB BIGELOW, contained in the number of this journal for July, 1852, a similar remark is made, in reference to the city of Boston.

"From an extensive inquiry among physicians," says Dr. Bigelow, "and also from the bills of mortality, they (speaking of the committee by which the question comprising the subject of the report referred to, was investigated) are led to believe that the health of the city of Boston has been uncommonly good during the last two years, and they have not learned that any well-marked cases of the diseases usually attributed to lead, have occurred, which were not traceable to some other cause than the use of Cochituate water, drawn from lead pipes."

It is admitted in the report before us "that pure water exerts no effect on pure metallic lead. Pure water is never decomposed by pure lead." But pure water, that is, water free from all uncombined oxygen, acids, and alkaline, earthy, and metallic salts, does not exist naturally.

"The effects of natural water in relation to lead are alone," Dr. Adams remarks, "to be investigated. The action of natural water on lead is due to foreign matters contained in water. All natural water contains air, acid, gas, and salts. These all exert an effect more or less direct on lead. The salts cause water to be hard or soft, and these qualities modify the chemical relations of lead and water. The salts in natural water are either neutral or non-neutral; the last are all alkaline. The neutral are sulphate of lime, common salt, earthy and alkaline nitrates, and chlorides. The alkaline consist of bicarbonates of lime and magnesia, sometimes of bicarbonate of potash and soda.

"These several substances act, either singly or combined, on lead. Single action is generally direct, combined action is always indirect. Hence, the foreign matters in water may be divided into direct and indirect agents. The first class comprises oxygen, chlorine, and compounds of sulphur and hydrogen. The second class comprises the alkaline, earthy, and metallic salts, and organic or inorganic acids.

"Among the foreign matters, oxygen exerts, perhaps, the most important influence in determining the action of lead and water; when absent from water, action will rarely occur; its action is primary. With the exception of chlorine and hydrosulphurous compounds, no other agents act primarily, and direct action always precedes indirect, primary always precedes secondary action.

"Pure metallic lead cannot be put in contact with any direct agent in water without being acted on by it, and the results of this primary action are *oxides, chlorides, and sulphurous compounds of lead.*

"The degree of oxidation depends on the amount of common air, carbonic acid, and oxidizing agents in the water. If only a small amount of air or free oxygen is present, a compound of two proportions of lead to one of oxygen, or a suboxide is formed. If carbonic acid and oxidizing agents are more abundant, then a higher degree of oxidation, one portion of lead to one of oxygen, or a protoxide, occurs. All natural water contains oxidizing and decomposing agents, which readily change the lower oxide into a higher oxide of lead; hence it may be said that the result of direct action is the formation of protoxide, chloride, and sulphurous compounds of lead. Water containing hydrosulphurous compounds is never used for domestic purposes; hence, practically, the only compounds of lead here to be considered are the protoxide and chloride.

"Bearing these principles in view, it is evident that, since all natural water contains direct or indirect agents, *all natural water acts on lead.* The result of this primary action is the production of an oxide or chloride of that metal."

After noticing the various conditions of natural water by which its action on lead is augmented or diminished, Dr. Adams remarks that

"The actual amount of the lead-solving power of any water is of little moment. It will become important only when it shall have been determined what is the minimum of lead which can exist in water, when used as a beverage, without detriment to health; a question as yet wholly undecided."

"In numerous cases of well-defined, unmistakable lead disease," it is subsequently stated, "which have come under the observation of some of the members of the Committee, the water suspected to be the cause of disease has been chemically examined. While, generally, it may be said that the amount of lead in solution would not fall below one-twentieth of a grain per gallon, yet the cases have not been rare where disease has been produced by less than one-hundredth of a grain of metallic lead per gallon in solution, or one in seven millions of water. One-hundredth of a grain of lead is easily detected by a simple stream of sulphuretted hydrogen. Water has sometimes caused disease, under the eye of a part of your Committee, where this test showed no trace of lead; yet lead was abundantly evident after concentration of the water, and the sulphuret

thus obtained has been converted into salts of lead, which have been again examined to confirm the hydrosulphurous test. Small as the amount of lead—less than one-seven-millionth of the weight of water—in solution thus appears, the Committee are disposed to place it still lower. The Tunbridge well may be adduced, whose waters, flowing through a lead pipe, disordered many who drank it; and it contained so minute a trace of lead in solution, that some of the most acute and eminent chemists of the day—men full of chemical tact and laboratory experience—failed to detect its presence. Happily for the afflicted, lead was at last detected, the pipe was removed, and health returned.”

If all water used for domestic purposes, when transmitted through a leaden pipe, becomes impregnated with the metal, and “the purer the water and the greater its aeration” the greater is the extent of the impregnation; if the extent of the impregnation sufficient to render the water deleterious to the health of those who use it for dietetical purposes may be so slight as to prevent its being detected by the ordinary chemical tests, how happens it that entire communities—as in the case of Philadelphia—have made use of water transmitted through lead pipes, for more than a quarter of a century, with, apparently, entire immunity from disease traceable to its influence, certainly without experiencing any of those affections known to be the result of lead-poisoning.

That lead-transmitted water will produce disease in those who use it as a drink, the facts adduced in the report before us incontestably prove; that, however, such water will, in certain localities, prove perfectly innocuous, is equally certain; to ascertain the cause of this difference of effects, is deserving of a careful investigation.

“The salts of natural water,” remarks Dr. Adams, “were at one time thought to be protective against its lead-solvent power. To a limited degree, this is true of water holding in solution bicarbonate of lime, a deposit of carbonate of lime gradually incrusting the interior of the pipe. But, as we have no analysis recorded of the water thus flowing through a pipe lime-coated, it is impossible to say whether bicarbonate of lime has ever prevented gradual corrosion of the lead.

“The doctrine of protective power has been much extended within a few years. It has afforded, and still affords, to many minds, an argument for the safety of water lead-transmitted. This doctrine has assumed various phases, which may be reduced to the three following:—

“1. Protection by certain salts of the ‘right kind,’ present in water in a limited proportion, or by salts artificially introduced for the purpose of producing compounds of lead known to be insoluble in pure water. In the latter case, the pipe filled with a solution of the protective salt must be left closed for some months, to allow a protective coat to be formed.

“This may be called the Edinburgh doctrine, having been promulgated and advocated by Dr. Christison, of that city.

“2. Protection by the formation of an insoluble coat of suboxide of lead after a few days, or at most a few weeks’ contact with water. This may be termed the Boston doctrine. It was there adopted as the ground of safety of using lead service-pipes for lake water; fortified, as it was, by the belief that the inhabitants of other cities, using river or lake water lead-transmitted, had been protected from lead disease by the formation of an insoluble coat.

“3. Protection by the presence of a limited amount of carbonic acid present in the water, forming insoluble carbonate of lead. This is the latest, and it may be termed the London doctrine.

“It is assumed by the eminent chemists by whom this doctrine has been advanced, as the ground of their belief, that the present distributing lead pipes in London may safely be continued if that metropolis should hereafter be supplied from the newly-proposed sources with a constant supply of soft water.

“The advocates of protection,” says Dr. A., “seem not to have duly considered

that their several protective coats, however insoluble in pure water, are decomposable and soluble by the salts contained in natural water. The Edinburgh doctrine has been practically abandoned by its author.

"The Boston doctrine has been disproved by the results of analysis of water at present flowing through the lead service-pipes earliest laid down by the city authorities. The London doctrine is yet to be proved, but its authors admit that an excess of carbonic acid will dissolve the coat of carbonate, and thus the water will be rendered deleterious if the solved lead exceeds one-twentieth of a grain per gallon.

"The whole doctrine of the protective power by the formation of an insoluble, impervious coat on lead, by the action of the impurities of water, is set aside by the fact that, however this coat may be formed, lead transmitting water is constantly dissolved. No limit of time has yet set bounds to this action. This is the lesson of experience taught by the erosion of lead-pipes and cisterns. It is the result of experiment that, where no perceptible action is visible, chemical examination detects lead in solution. Without going into detail, by adducing evidence on these points, by citing the statements which, within a few months, have been made to learned associations by scientific men, or to parliamentary committees by practical plumbers, of the ceaseless corrosion of lead by water, the Committee would remark, that the doctrine of protection is no longer tenable on scientific or practical grounds. Still, it is a doctrine which has many advocates, and exerts an influence on many minds, which is much to be deplored, viewed as a question of public hygiene."

The second section of the report under consideration is devoted to a consideration of "the diseases which proceed from the use of lead-water." This the Committee pronounce the most difficult part of the duty assigned to them, and which they feel their inability to do justice to; the subject requiring "a more thorough research than the limited opportunities of observation falling to their lot have enabled them to bestow upon it;" a subject they have but just entered upon, but which "they hope those who have a wider field of observation may, ere long, more fully develop."

This portion of the report is, nevertheless, replete with interest and much practical instruction. Notwithstanding Dr. A. has followed very closely the admirable descriptions furnished by Tanquerel, of the primary effects of lead when introduced into the system, and of the several forms of disease directly traceable to the poisonous influence of the metal, yet the illustration of these diseases, their characteristic phenomena, their march, and usual terminations, as well as of their proper therapeutical management, derived from the personal observation of Dr. A. and his colleagues on the Committee, or furnished by their medical friends, gives to this portion of the report an originality and value that should recommend it strongly to the attention of the profession throughout the United States.

"Science," it is remarked, "has not, probably, yet revealed all the diseases which proceed from lead taken into the human system. Several serious diseases, however, at the present time, are well understood to have their origin in the absorption of this poison, while others, scarcely less severe and distressing in their character, have not as yet been definitely proved to be thus produced, although many of them have fallen under strong suspicions of having a saturnine origin. Several of these, as some forms of dyspepsia, neuralgia, and rheumatism, from their well-known resemblance to other forms of lead disease, have been so classed by many very intelligent and observing physicians."

The third report is *On the Permanent Cure of Reducible Hernia*, by GEORGE HAYWARD, M. D., of Boston, Mass. This paper presents a condensed, but clear and very satisfactory sketch of the several operations that have been practised for the radical cure of reducible hernia. The objections to each are pointed out, and the difficulties attendant upon every means that can be employed,

with safety, to establish a permanent barrier to the descent of the bowel, in cases of reducible hernia, are discussed with a precision that gives to the report a peculiar practical value. The conclusions at which the Committee have arrived, after a careful examination of the subject, are thus stated :—

"1. That there is no surgical operation at present known which can be relied on with confidence to produce, in all instances, or even in a large proportion of cases, a radical cure of reducible hernia.

"2. That they regard the operation of injection by the subcutaneous method as the safest and best. This will, probably, in some cases, produce a permanent cure, and in many others will afford great relief.

"3. That compression, when properly employed, is, in the present state of our knowledge, the most likely means of effecting a radical cure in the greatest number of cases."

On the subject of compression with the view of effecting the permanent cure of hernia, the Committee remark as follows :—

"It is an unquestioned fact that reducible hernia is often cured in young subjects. It may be accomplished in them by various means ; but it should not be thence inferred that the same course would uniformly produce like effects in adults.

"It may be remarked that, in children, any method which can prevent the protrusion of the hernia for a year or more will, in all probability, produce a permanent cure. If the aperture, through which the contents of the sac must pass, can in any way be prevented from enlarging, while the viscera of the abdomen are increasing in size, it is obvious that a great length of time would not be required to render an escape of any of the abdominal organs difficult, if not altogether impracticable. We see familiar examples of this daily in umbilical hernia, which is brought on so often in infancy by hooping-cough and various other causes. *Compression*, it is well known, will, in all such cases, if carefully practised, in a comparatively short period, produce a radical cure ; and it is a valuable agent in the management of reducible hernia at every period of life. It has been used from the time of Celsus to the present, and it has not unfrequently succeeded in producing the desired result. It is usually applied at the present day by means of trusses. Great improvement has, of late years, been made in their construction. It cannot be doubted that an instrument of this kind, when nicely adjusted, so as to cause no pain or inconvenience, and at the same time to compress the neck of the sac, may, if used for a considerable length of time, prevent, in many cases, the subsequent protrusion of the hernia.

"It is well known that pressure upon a serous membrane, when carried to a certain extent, will cause an effusion of fibrine on its inner surface ; and it was from a knowledge of this fact that, in former times, the method of treating aneurism by compression was adopted. This mode often succeeded in producing a radical cure by closing the artery leading to the aneurismal sac. The practice has been revived with great confidence within the last few years, and the results hitherto have been equal to the expectations of its advocates.

"In the treatment of hernia in this way, it is of the utmost importance that protrusion should not be allowed to take place at any time ; 'for if the hernia once descends during the wearing of the truss,' as Sir Astley Cooper well remarks, 'the cure must be considered as recommencing from that moment.' The truss, therefore, should be worn by night as well as by day.

"It is important, also, that while the pressure is sufficient to prevent the descent of any of the abdominal contents, it should not be enough to cause any considerable degree of inflammation. This would not only require the truss to be laid aside altogether, but it would also stop entirely the effusion of fibrine. In inguinal hernia, the pad should be so placed as to compress the inguinal canal ; and, at the same time, great care should be taken to avoid pressing the spermatic cord against the pubis.

"A radical cure will not be effected in this way, unless the compression is

continued for a length of time. It cannot be reasonably looked for in an adult in less than two years from the time the truss is first worn ; and it can hardly be expected at all in persons after the middle age of life, who are afflicted with a direct inguinal hernia of long standing. At the same time, more benefit is derived from compression in such cases than from anything else, and persons in this situation are not safe without it."

The fourth and last of the reports from committees on special scientific subjects, is *On the Topical Uses of Water in Surgery*, by CHARLES A. POPE, M. D., of St. Louis, Mo.

The therapeutical uses of water, whether given internally, or applied externally, have not escaped the attention of physicians. Of its effects as a remedial agent, we find frequent mention made by medical writers of almost every period in the history of our art. Although in the various mutations which the catalogue of the *materia medica* has undergone, it may have occasionally been omitted ; although it may have been estimated occasionally either beyond or below its true value ; although the proper mode of its administration may have been misunderstood, or the character and stages of disease or injury most favourable for its employment, may not have been accurately determined ; still, its beneficial influence, when resorted to at various degrees of temperature, or in the form of ice or steam, has, we believe, never been entirely lost sight of by either the physician or surgeon.

To determine with accuracy the real value of water as a remedial agent, and to settle the rules for its employment, and the circumstances under which it will prove most advantageous when administered internally or externally, warm or cold, in its solid, liquid, or vaporous state, continuously or interruptedly, by affusion, fomentation, irrigation, lotion, immersion, injection, or douche, etc., would confer a benefit of no trifling magnitude upon both physician and surgeon. When the true therapeutic philosophy of water shall be well understood, it will be found, we are convinced, of a much more extended and efficacious application in the treatment of diseases and surgical accidents than is now generally supposed.

In the report before us, Dr. Pope has noticed simply the local external effects of water in the department of surgery. Although he has by no means exhausted the subject, he has, nevertheless, presented it in a point of view well calculated to direct to it a greater degree of attention than it has yet received.

The following are the cases indicated by the reporter as those in which the continuous use of cold water is advantageous :—

"1. As a local anæsthetic. From the effects which we have described as following the application of water of a low temperature, we should, *à priori*, infer its use in obtunding sensibility. We produce a frost-bite of the first degree, when the part is said to be 'dead.' Benefit in this way can only be obtained in parts of no great thickness, as the phalanges of the fingers and toes, amputations of which have been thus performed without the patient experiencing the least pain. General anæsthesia by the usual means of ether or chloroform inhalation will for such purposes, on account of a more rapid indication of the desired effect, be perhaps preferred ; still, cases contraindicating the exhibition of these very exceptionally dangerous agents may occur, when for the removal of fingers or toes or the ablation of certain tumours, as we have ourselves practised, it may be desirable to resort to other means, or to the local anæsthetic power of cold. Here, as in other instances to prevent undue reaction, the cold applications of a gradually more elevated temperature should be continued as the after-treatment. Do not ether and chloroform produce local anæsthesia by their evaporations inducing cold ? Certain it is, we think, that their major action may in this way be explained, as their local and general effects seem so widely to differ.

"2. In inflammation of particular parts, as (a) in inflammation of the brain, especially when induced traumatically. Notwithstanding the fear once felt in the use of cold applications to the head, they are now, next to bloodletting, generally acknowledged to be one of the most powerful remedies in the treatment of such affections. (b). In ophthalmia, attended with ocular pain and cephalic congestion. Some of the German surgeons are fond of cold applications in all purulent ophthalmia, as they think that they prevent the discharge and mitigate the violence of the disease. Here, too, its place is next to bloodletting. In the *ophthalmia neonatorum*, cold water has been found very serviceable, and excellent success has also attended its employment in scrofulous photophobia. In simple catarrhal ophthalmia, cold applications should not be too long continued. Their good effects are most marked in the earlier stages, when, failing, their continuance is likely to induce a rheumatic complication. Poppy and other anodyne fomentations are then preferable.

"(c). In traumatic inflammation of the thoracic and abdominal cavities, as contusions, wounds, etc., attended by extravasation of blood. Many surgeons who employ cold applications in affections of the limbs fear their use about the trunk on account of the proximity of serous surfaces, which they allege take on consequent inflammation. Marshall Hall strongly recommends them even in metro-peritonitis with decided advantage. But in these cases there is danger, for, as it is difficult for the cold to act except at the periphery, it may cause deep-seated congestion. Hence, if water be applied at all, it should be in an uninterrupted manner, and at a very low temperature, so as to diminish the circulation of both the superficial and central vessels. Our own experience is decidedly favourable to cold applications in bleeding, and penetrating wounds of both cavities of the trunk, and we have not noticed the production of this dreaded pleurisy or peritonitis to be attributable to their action. Is there not also a serous membrane of the brain? But we are not on this account deterred from their use in traumatic lesions of the head. The osseous envelop is not a sufficient explanation of the difference in the two cases.

"(d). In orchitis, cold applications act most beneficially, so long as the true sthenic character prevails. According to Rush, their use should not be too long continued in the inflammation of glandular organs, because of the indurations which are likely to follow. This surgeon is very partial to the use of cold water in almost all external diseases, but for the reason assigned does not admit its employment in orchitis even of a traumatic origin. He prefers, in such cases, warm sugar of lead fomentations. This induration, with enlargement, almost always follows inflammation of the testicle as an immediate consequence under every treatment, and I am not aware that it more frequently follows the use of refrigerants than other remedies. In the earlier active stages of orchitis their use will, as in other inflammations, be found on trial consonant to the general rule.

"In inflammatory enlargements of the superficial lymphatic glands of the groin, along with rest and a compressive bandage, we have found cold applications very useful in effecting a return to their normal size. There are buboes which will suppurate in spite of all and every treatment. In such, the specific, for example, where suppuration is by many regarded as an elimination of the poison, we withhold the use of refrigerants.

"(e). In inflammation of mucous surfaces, as gonorrhoea, leucorrhoea, chronic cystitis, etc., the applications of cold water, either by fomentations, irrigation, or injection (in case of the bladder by means of a double catheter), are very useful. The cold imparts tone and strength to the relaxed and weakened membrane. In the case of the penis, local cold-baths are generally to be preferred to injections. Uterine injections, however, have of late years met with favourable reception in practice.

"(f). In paraphymosis, the use of cold water is highly serviceable. It diminishes inflammation and engorgement, whilst it favours the spontaneous reduction of the glands, or proves an efficient aid to the manipulatory efforts of the surgeon. The water should be poured upon the part from a height for twenty minutes or half an hour before attempting the restoration. We have

never yet seen a case at all acute which has resisted this means and required a resort to the knife.

"Cold applications are applied not only to cure inflammation already established, but far oftener to prevent its accession when likely to follow previous injuries. With this view are they especially used—

"1. In wounds. The more important the organ injured, the more we should strive to ward off inflammation, and consequently the more urgently are cold applications indicated. In wounds of the head, of the external soft parts, as well as of the cranium and brain, in wounds of the chest and abdomen, either penetrating or not, and, lastly, in wounds of the extremities, cold water is a chief remedy, and should never, unless for major reasons, be neglected. Its beneficial effects are most marked in incised wounds, as amputations and the like, where we wish union by the first intention. This important and generally desirable process is not in the least hindered, but, on the contrary, is often promoted by the judicious use of refrigerants. In lesions implicating joints (especially the knee) and peri-tendinous sheaths, no other application is superior, although we should not neglect venesection and other means of cure. Did it comport with the plan of the present paper, we might cite many striking cases in illustration of the great benefit of cold applications.

"In contused, lacerated, and gunshot wounds, they are no less serviceable. Here, it is true, that a certain amount of inflammation must follow, nor is it intended, as some suppose, altogether to prevent its occurrence. We aim simply to moderate and restrain, not to prevent or absolutely to control. In the first period of gunshot wounds, that of shock, cold applications ought, for obvious reasons, to be withheld. As this state passes off, they should, however, be sedulously made. While, on the other hand, there is but little doubt that in many a grave gunshot, or other injury, were the treatment by continuous irrigation or immersion in cold water, amputation might be often prevented, and thus both life and limb saved; on the other, in those comminuted fractures with division of large bloodvessels and nerves, and other serious disorder, we should not indulge the vain hope of saving by water or any other treatment, that which it would be both safer and more useful to remove.

"As to the length of time required for applying cold water, it will depend evidently on the circumstances of the case; a few days being sometimes sufficient, while in others a month or more is necessary. Instances are given in which the applications have been continued for three months. It is important to remember that, when from any cause it may be deemed advisable to discontinue the application, it should not be done suddenly, but gradually, and by the substitution of water of a more and more elevated temperature. By this means the rapid and undue reaction will be prevented, and a more formidable inflammation averted.

"With respect to the danger of mortification from the continuous application of cold, it is by no means clear that the contusion itself was not the chief cause of the mortification in cases where this has taken place. Certain it is that snow and ice would more likely predispose to this untoward accident, which the judicious surgeon can generally foresee and prevent. Bérard has twice seen, under these circumstances, the mortification of the great toe. Whenever the connections of the contused part are such as seriously to interfere with its circulation, gangrene is to be apprehended, and cold applications are to be most warily used. So, too, in severe fractures, accompanied by paralysis, the vitality of the part being lowered, the danger of mortification by continuous cold is enhanced.

"Another objection to continued irrigation has been made by M. Piorry. It is, he says, a kind of injection, which dissolves the pus, introduces it into the open vessels, and thus causes *pyæmia*. The removal, by such means, of the pus and septic detritus of a part, was, it would seem, a means rather of preventing than of inducing systemic infection. Besides, under the use of cold water, the quantity of the discharge is diminished, and there is, consequently, less danger of absorption.

"2. In concussion, particularly of important organs, as the brain, lungs, and abdominal viscera. Here, of themselves, cold applications are often sufficient

to prevent the development of inflammation. It is important to recall the fact that, in all cases of severe shock, the system should be permitted to recover either naturally or by restoratives, before resorting to irrigation or immersion.

"3. In bruises or contusions of soft as well as of hard parts; in fractures, luxations, and sprains, cold applications are used according to the same rules. In sprains, momentary luxations self-reduced, conjoined with rest and position, no remedy is equal to them. In the swelling and pain which so soon follow on fractures and dislocations, cold water, by abating both symptoms, is an admirable aid in enabling us to examine satisfactorily, in order to an exact diagnosis. It is equally serviceable in their after treatment. Dupuytren supposed that cold, whether by water or the atmosphere, retarded and occasionally prevented the formation of callus. This can be true only when the fractured bone is near the surface, and when the cold is applied to such a degree as to diminish that vascularity of the part necessary to the formation of callus.

"4. In incarcerated and strangulated hernia, cold water not only prevents the expected inflammation, but also greatly assists the taxis by its contractile effects. It is when the protruded bowel is greatly distended by flatus that its beneficial influence is most marked. Freezing of the parts, in such cases, is said to have occasionally occurred, an event which moderate attention might easily forestall. In prolapsus of the rectum and of the vagina, as also in hemorrhoids, cold water often proves salutary in facilitating the reduction of the displaced parts, on the one hand, while, on the other, it prevents the inflammation which might follow.

"5. For the cure of aneurism and varices. Combined with compressive bandages, cold water has been used with success, especially if the case be recent. It has generally been restricted, except as an adjuvant to compression, to internal aneurisms, as of the aorta, &c.; the external being amenable to more certain means of cure. The examples of success, according to the method of Valsalva and Albertini, are in part to be attributed to the continued application of cold. Ice has cured aneurism; but the best mode of applying cold is to envelop the whole limb, including the aneurism, with a roller, which should be kept constantly wet with water at a low temperature. In cases of internal aneurism, where a cure is not effected, the cold serves at least to delay the fatal termination.

"6. In all degrees of burn, cold applications, although objected to by many surgeons, have enjoyed great reputation from the most ancient to the present time. Pain is at once relieved. The application should, however, be continued, as a suspension would be followed by increased inflammation and pain, more agonizing than if cold had never been used. In very extensive burns, however, cold water is of doubtful utility, on account of its sedative effects on the already depressed system.

"7. In commencing bed-sores, cold applications are usually very serviceable.

"8. After the operation for cataract, the constant application of compresses saturated with cold water has a marked effect in preventing the development of inflammation."

The residue of the reports in the present volume, save one, are devoted to a history of the epidemic diseases of different sections of the United States, during the year 1851.

The portions of the United States included in these reports are:—

1. New Jersey, Pennsylvania, Delaware, and Maryland.
2. South Carolina, Florida, Georgia, and Alabama.
3. Ohio, Indiana, and Michigan.
4. Tennessee and Kentucky.
5. Louisiana, Mississippi, Arkansas, and Texas.

The Committee on the epidemic diseases of New England and New York occupy their entire report with suggestions calculated to improve the fulness, accuracy, and completeness of the reports on epidemic diseases hereafter to be made to the Association. These suggestions are in the highest degree

judicious, and if adopted and fully carried out, would add materially to the interest and value of these reports.

It is proposed that the committees for the several sections of the Union should be appointed for a series of years. The results of their researches would, consequently, become from year to year more valuable, and, at the conclusion of their term of service, a summary of these results could be made out, which would be of very great value to the profession. "It is obvious that comparisons could be instituted between the results of different years, by a committee acting for the whole period, which could not be made successfully by committees newly appointed from year to year."

The entire series of the reports on epidemic diseases contained in the volume before us are of a most interesting character. They differ, it is true, in the quantity and exactness of the materials furnished by each, and in the care with which the individual facts are digested and collated. But, as they comprise a history of the personal observations and clinical experience of a large body of the profession throughout the different portions of the United States, they furnish no slight amount of practical information.

A continuance of these reports, under the system suggested by the Committee above referred to, will render the Association the agent for the introduction of "a grand system of observation for the whole country, in relation to the causes of disease, and the means of counteracting their influence, or of removing them."

Many quotations might be made from the several reports before us, presenting most instructive views in relation to the character and treatment of the prevalent diseases of the several sections of our country; but the space we have already occupied will oblige us to compress within very narrow limits our notice of this portion of the *Transactions*.

Dysentery would appear to have been one of the most wide-spread of the epidemics observed during the year 1851. Notices of it appear in nearly all of the reports before us. In New Jersey, the disease is stated to have occurred during protracted drought. In Hunterdon County, the disease raged to the greatest extent, and with the greatest malignity, on the mountains embraced within the bounds of the epidemic. The disease was most severe on the limestone. In other sections of the State, however, it is remarked that where the limestone beds prevail the most extensively there has been less dysentery than elsewhere. Reference is made to an interesting tract of country called Kittatinny, a valley underlaid with limestone perhaps as extensively as any other region of equal size in the State; while there has been no general prevalence of dysenteric affections within its limits, on the hills and mountains surrounding it, which are formed of clay and trap, the disease has prevailed in the form of an epidemic, and in some districts was unusually mortal.

On the Eastern Shore of Maryland, dysentery prevailed as an epidemic during the summer of 1851, the weather being excessively hot and dry. The region is destitute of limestone.

In Houston County, Georgia, epidemic dysentery prevailed, though neither extensively nor of a grave character; the temperature of the weather was pretty equable, and it was rather dry.

The disease appears to have prevailed very extensively in different parts of Alabama, during the summer of 1851.

"D. Gohlson writes, in regard to Autaugaville, that the place has been settled about eighteen months, and contains about three or four hundred inhabitants, many of whom are operatives in a cotton factory, and that the disease chiefly

prevailed among the latter class of persons. The houses of the operatives are closely crowded, and each dwelling has a privy, from which proceeds, during the warm months, an exhalation offensive even to persons passing the streets. That the disease, says Dr. Percival, of Lowndes County, depends on a vitiated state of the atmosphere I have no doubt. In August and September, Dr. Cilley tells us, that in the prairies of Lowndes County the disease occurred principally on those plantations on which, in consequence of the long-continued drought, the water was changed and freestone substituted for limestone water. 'Since the first week of April,' says Dr. Anderson, of Sumpter County, 'the weather has been remarkably dry and intensely hot, and traces of the disease only have remained.' But again, at a later period, the same gentleman writes: 'Since the cold weather of the middle of December, it seems to have disappeared from the neighbourhood entirely.' Dr. Mabry, of Dallas County, says, in regard to Selina, that there was nothing in the condition of the town that could enable him to account for the disease. The weather, however, during the spring and summer, was warm, and there were frequent changes from a high degree of heat and a dry state of the atmosphere to a cold and chilly dampness. Whenever these changes occurred, there was a remarkable increase in the disease. In many cases,' he continues, 'the immediate or exciting cause of the disease was the imprudent use of indigestible food,' &c. From Dr. Pearson, of Pickens County, we learn that the disease commenced in his neighbourhood immediately after the subsidence of the high water. 'It was conjectured by many that it originated from the overflow, from the fact that it first made its appearance at Warsaw, a small town on the river, some eight miles below in Sumpter County, which had but recently been entirely inundated, so that the earth under the houses was left saturated with moisture. From this point, as the radii from a centre, it spread around into the adjacent country. The epidemic, finally, without regard to localities, proved equally fearful and fatal upon the highest and formerly healthiest situations, impressing us with the idea that its origin depended more upon the condition and vicissitudes of the atmosphere than upon any local conditions referable to malarial origin. We noticed at the time of its greatest intensity a peculiar coldness of the nights, requiring protection from overcoat and blanket, while in the day time, such was the intensity of the heat, that nothing was comfortable but linen clothing. As the weather became more equable in its temperature, the disease became less frequent. Recently, since our nights have grown cooler, the disease has revisited us.' Dr. Clanton, of Warsaw, Perry County, where the disease prevailed with great virulence, says: 'Our streets were three feet deep in water on the 20th of February.' Dr. Bates, of Marion, Perry County, says: 'It is a difficult matter to assign any specific cause for the epidemic. There were not any remarkable or peculiar atmospheric changes noticed or assigned as being particularly favourable to the development of the disease; and from the fact of its general prevalence, it is fair to presume that the causes were unusual and inappreciable, though perhaps to a degree malarial.' Dr. Gordon, also, of Perry County, writes: 'I do not think it is worth the trouble to send you an account of the topography of Marion, as it obviously had nothing to do with the generation of the disease.' The supposed cause, says Dr. Carey, of Fayetteville, Talladega County, I set down to atmospherical changes. The most sudden vicissitudes of weather, he continues, took place during the time of the epidemic. Dr. Taylor, of Talladega, says, that apart from the deleterious influence of a cold, wet, and variable autumn, which followed a very dry summer, he knows of no cause that was calculated to engender the disease, and he thinks that, to a considerable extent, it was modified by malaria."

In Cincinnati and its vicinity dysentery prevailed to a considerable extent during the summer and through the month of September, 1851. Cases were frequent during and following the existence of cholera. Dr. Mendenhall remarks that its connection with cholera has, in his vicinity, been uniform, and leads us, he adds, irresistibly to the conclusion that they must have their origin in a common cause; individual peculiarities and influences, and degree

of concentration of the cause determining the one or the other of these diseases. The majority of the cases of dysentery followed a diarrhoea, or supervened in cases of cholera infantum. Excepting among children, the fatality was not great, recovery, in adults, taking place in nearly all cases. Its greatest prevalence was in districts where cholera was most common. The habits of life and influences predisposing, and the exciting causes seem to be similar in the two diseases.

Dr. Dorsey, of Piqua, Miami County, Ohio, remarks in reference to the topography of the Miami Valley:—

"The face of the country is agreeably diversified, but there are no lofty ranges of hills, nor are there any very extensive tracts of flat or unbroken ground. The banks of the streams are sandy and very fertile, while on the high grounds the soil is composed of more clay, with less vegetable mould. The whole country abounds in secondary limestone rock, underlying the clay soil of the uplands, and forming the channel of nearly all the creeks and rivers, and is exceedingly rich in fossil remains. No particular difference, the doctor adds, is found to exist, as a general rule, between the epidemics of the alluvial bottoms and those of the uplands, though miasmatic fevers are more common in the former than in the latter locations."

In Miami County, dysentery, we are told,

"Is a common disease, although it has prevailed but twice as an extensive and serious epidemic within the last eighteen years. The first was in 1835, and the second in 1850, yet few seasons pass in which more or less of the disease is not found."

Highland County, Ohio, has its surface underlaid by those formations which lie between the old red sandstone and the lower silurian system.

"The tops of the highest hills in the south-eastern part of the county are capped with the Waverly sandstone, which underlies the great Appalachian coal-basin to the east. Immediately under the sandstone lies a stratum of shale about two hundred and fifty feet thick, which caps some of the lower hills, but does not extend very far into the interior of the county. The dip of this stratum is to the south-east.

"Beneath the shale lies a stratum of limestone one hundred and fifty feet thick, which is known among western geologists as the cliff, or cavernous limestone. This rock forms a substratum of the largest portion of the county. The width of surface, underlaid by it from west to east, in the south, is not more than eight or ten miles. But further north it widens very rapidly, and the whole breadth of the county at its northern side is underlaid by this formation.

"Below the cliff limestone there is a thick layer of blue marl. This crops out from under the limestone, and the lower part of it forms the substratum of the western and south-western parts of the county. The upper part of this stratum seems to have been removed by some powerful agency.

"On Rocky Fork and Brush Creek, there appear in the marl, about one hundred feet from its top, several layers of thin silicious limestone, which among the inhabitants is known by the name of flagstone. The stratum is about twenty feet in thickness, and is probably co-ordinate with the flinty limestone of Adams County, described by Dr. Locke.

"In the south-western part of the county there are some layers of the blue limestone, which afford the only specimens of trilobites yet found in the county.

"Drift covers the whole surface from north to south, but it is deposited much more thickly upon the northern than upon the southern portions.

"In the north, the beds of the streams are in the cliff limestone, where it is not too thickly covered with drift. In the central parts, the blue marl forms their beds, and the hills upon either side, capped with limestone, are generally rounded at their summits, although the crags of the cliff rock may be frequently

seen jutting out upon their sides, adding beauty to the landscape and the elements of fertility to the soil.

"Clear Creek, the northern branch of Rocky Fork, rises upon the elevated table-land underlaid by the cliff limestone, and, after flowing a short distance along its stony bed, rushes over a precipice thirty feet in depth, and falls upon a rocky bottom, to which it is confined for several hundred yards by high and closely pressing cliffs festooned with the drapery of overhanging shrubbery. Emerging from this canon, it reaches the blue marl, upon which it flows for several miles, passing through one of the most beautiful and fertile valleys in the State, and joins the Rocky Fork about twelve miles from its source."

The dysentery, we are informed,

"Began to appear in Highland County early in June, and by the 1st of July was epidemic, and continued to be so throughout its western, middle, and northern parts. The tract of country afflicted with this epidemic extended from Dodsonville upon the west to Greenfield on the north-east, and was some six or eight miles wide. A particular locality, between the sources of Clear Creek and Willettsville, was most severely afflicted, scarcely a house escaping. The individuals who suffered from the disease were generally under the age of puberty, although adults did not escape. In the neighbourhood of Greenfield, Dr. Newcomer says, 'all ages, sexes, and conditions were equally liable.'"

West Union, Adams County, Ohio, a village, is situated at an altitude of about six hundred feet above the level of low water in the Ohio River at that place, upon a cliff of limestone from which issue several springs, the water of which is strongly impregnated with lime. The soil is a loam of four feet in depth, having a highly ferruginous impregnation, so much so as to give it quite a red colour in many parts. The surface is quite rolling, and perfectly free from pools or stagnant water.

Dysentery has occurred in some parts of this county for the three summers preceding 1852, affecting children more than adults.

In Wilmington, Clinton County, Ohio, dysentery was the prevailing disease during the summer and autumn of 1850 and 1851. In the latter part of the summer of 1850, the disease occurred in a very malignant form. It existed to a great extent, particularly in the northern and western portions of Clinton County; these portions are hilly, and limestone occurs superficially. It was very malignant on Todd's Fork and Cowan's Creek, branches of the Little Miami River. These districts were visited by cholera in the summer of 1849 and 1850.

In Marietta, Ohio, dysentery, in 1851, made its first appearance on the elevated alluvial plain on the north side of the village the last of June, and was confined to that portion of it for nearly eight weeks, when it gradually spread into the lower portions along the bottom lands. It spread into the adjacent country in September and October amongst the farmers, but seemed even there to be most rife in the elevated and hilly portions of the country. Wherever it prevailed, it was of a severe and malignant character; frequently proving fatal. It did not seem to be contagious, and yet it often attacked in succession nearly all the members of families in which it occurred. It was particularly fatal to young children and aged persons.

Salem, Columbiana County, is situated intermediate between the hilly part of the State, bordering on the Ohio River, and the comparatively level portion of the country west and north of this place. The land for some miles around, particularly from north-east (including that lying north and west), to the south-west of the village, is rather level, but sufficiently rolling to be well drained.

About the latter part of June, for the second time within thirty-six years,

dysentery made its appearance in the village and surrounding country, and prevailed until the approach of cool weather in the latter part of September. Several cases of *typhoid fever* occurred at the same time with this disease; in some instances, one portion of a family would have one of these diseases, and another portion the other.

Before the latter part of August, the weather was not remarkably hot, or dry, or yet uncommonly wet. The months of May and June were somewhat colder than usual, with rather less rain than commonly falls at that season of the year. Although rather colder than usual, the temperature was such as to conduce to comfort, and, we should suppose, to general health. The months of July and the greater part of August were warmer, and there was a sufficiency of rain to bring forward vegetation, which had before been backward, but there was no remarkable variation from ordinary seasons. The weather, during the latter part of August and nearly the whole of September, was excessively hot and dry.

"Dysentery made its appearance in June, while the weather was cool and pleasant, and, except that it was increased somewhat during the hot and dry weather in September, it appeared to be but little affected by the change, until after the coming on of the fall rains and cool weather about the first of October, when both dysentery and fever disappeared. From this view of the subject, it would seem as though the state of the weather, so far as any sensible deviation from ordinary seasons is concerned, could not justly be regarded as the cause of the disease in a village and region of country which, since its first settlement (nearly half a century ago), has been but once before visited by this disease as an epidemic."

"In regard to malaria, there was found no more cases in those parts of the district included in this account, which have been most subject to intermittent fever, than have occurred in those which have been the least so. In addition to this, dysentery has been very severe during the last summer, and more malignant, in the hilly portions of country between Salem and the Ohio River, than in the district we have been describing, while intermittents and remittents are almost entirely unknown in these elevated situations. Some malarious districts in this county, on the other hand, have entirely escaped the disease during the past summer."

In Belmont County, Ohio, bordering on the Ohio River, opposite to Wheeling, Va.—of which the surface is very much broken by high hills and deep ravines, with rapid streams of water and no level or swampy land—dysentery did not prevail during 1851, but, in the preceding year, it occurred almost to the exclusion of all other diseases.

In Indianapolis, and for many miles around, dysentery of a marked typhoid character prevailed during the years 1850 and 1851.

In Richmond, Wayne Co., and its vicinity, during the month of August, 1851, much of which was hot and oppressive, with great humidity of the air, dysentery prevailed. The most severe cases of the disease were observed on the rolling lands, eight or nine miles west of Richmond.

Dalton, Wayne Co., is situated in the valley of Nettle Creek, having a fertile soil, productive of heavy vegetable growth. The banks of the creek are low, and a moderate rise of water causes an overflow, which, on subsidence, leaves an extensively-exposed surface, and stagnant pools, containing more or less decaying vegetable matter, which, together with the mill-ponds along the stream, contribute, no doubt, to the production of malarious diseases. In the valley, and west of it for some distance, there are wet lands and stagnant pools of water, and, during the summer and autumn of every year, intermittent diseases prevail to a great extent, while, in the hilly territory lying east of the valley, the inhabitants are almost wholly exempt from these affections.

In the same district, in which intermittent diseases are so common, the dysentery prevailed extensively during the summer and autumn of 1851. It commenced about the 1st of July, and ended about the 10th of September. The hilly regions east of the valley were exempt from the disease. The first part of the season, even up to the last of July, was wet, but, after that time, scarcely any rain fell until the 1st of November. During August and September, the days were very hot, and the nights often rather cool.

The dysentery has prevailed, more or less extensively, as an epidemic, in the southern part of Indiana, during the summer and fall of the last four years. In June, 1848, it visited the vicinity of Evansville, and was chiefly confined to alluvial districts. The season was unusually wet, the days warm, and the nights cool. During this year, children suffered but little from the disease.

In August, 1849, the disease appeared again as an epidemic upon the subsidence of the cholera. It assumed a more severe character, and had a more extensive prevalence than in the preceding year. It was not entirely confined to the alluvial districts, but in them assumed a much more malignant character. Those places in which cholera prevailed most, were likewise most affected by this epidemic. Children were attacked equally with adults.

In the summer of 1850, the dysentery again made its appearance, following the visitation of epidemic cholera. It was less malignant than in the preceding year. It was most severe in malarious districts. In the summer of 1851, it appeared again, and prevailed extensively, but divested of any malignancy.

Fredericksburg, lies twenty-three miles west of New-Albany, on Blue River, in a portion of Indiana for the most part rather uneven. South of the town is a district called the "barrens," with very little timber upon it, but numerous large basins containing water during the whole year. The soil of this region of country is black, with a subsoil of red clay. The water is impregnated with lime. Atmospheric vicissitudes are frequent, but the prevailing winds are from the south and south-west. The spring of 1851 was remarkable for rain previous to the month of June, after which, the weather was excessively hot and dry, with only occasional showers.

The dysentery commenced here about the 1st of June with great malignancy, attacking persons of both sexes, and of every age, occupation, and habit.

The disease is supposed to have been generated by the condition of this region of country during the period of its prevalence. This opinion is founded on the fact of the wetness of the early part of the season, followed by excessive dryness and heat. The river became very low, while the numerous stagnant ponds were constantly exposed to the influence of the sun's rays, without being entirely dried up.

In Cold-Water, Branch Co., Michigan, the dysentery prevailed, during the months of July, August, and September, among persons of all ages. About two-fifths of the county are improved. It contains 15,000 acres of marsh, most of which produces grass that is cut for hay. The soil is mostly a fertile gravelly loam. The general surface of the country is undulating; streams are not rapid, their banks are low and often overflowed. Cold-Water River abounds in shoals, in which there are many acres of aquatic plants. Small ponds or lakes are numerous, abounding in vegetation half submerged.

"Popular opinion says that, when the water keeps high on the marshes, the season is uniformly healthy. This was true during the past summer. Dews are unusually heavy. Well-water contains lime in considerable proportion,

but is free from unpleasant taste or smell. The substratum in which water is found is coarse gravel. The month of June, 1851, was cold and rainy, while the month of August was very hot, with heavy rain. September was very hot and dry, but the nights were rather cool."

A portion of Kentucky, extending from Danville to the Ohio River, and from Maysville to Louisville, with occasional exceptions, has for its surface rock the blue limestone of the carboniferous system. It is covered, to a greater or less depth, by a bed of clay, usually having salts of iron in combination. This clay is covered by a layer of vegetable mould, constituting a soil of unrivalled fertility. The water used for drinking and cooking throughout this region is usually "limestone water." This applies to the counties of Kenton, Boone, Woodford, Scott, Oldham, Bourbon, Lincoln, and Madison. In Hickman, Fulton Co., the drinking-water is freestone. In many parts of Kentucky, the water for every purpose is obtained from cisterns; by the poorer classes, in some parts, river water is made use of.

In reference to the prevalence of dysentery in Kentucky, we quote the following summary from the well drawn-up report presented by the Committee of which Dr. W. L. Sutton, of Georgetown, was chairman:—

"We find this disease to have prevailed at different points in Kentucky. Accounts have been received from Boone, Fulton, Kenton, Woodford, Madison, Bourbon, Oldham, Meade, and Lincoln. Several other counties are said to have suffered from it more or less."

"Of the causes of dysentery your Committee have nothing new to say. The circumstances which for a long time have been considered favourable for the production of malaria were very strikingly present at Hickman and at Covington. At the former place, the great rise of the Mississippi River in June seems to have been the great cause of the sickness. The creeks and ravines were filled with back water to a very unusual degree, and were left, upon the subsidence of the water, covered with mud and decayed vegetable matter. The hot weather of July, August, and September, coming upon this state of things, produced an unprecedented amount of sickness. In the language of our reporter (Dr. John Sutton), 'almost every one was more or less sick during the epidemic, and for some weeks enough well persons to attend to the sick could not be procured.'"

"At Covington, the same remote causes existed in a manner equally marked. On the borders of the Ohio and Licking Rivers, and the bottom of Willow Run, from one hundred to four hundred yards wide, as also the flat ground extending towards Willow Run and to the Ohio River, together with the ponds caused by grading the streets, furnished ample sources for the elimination of noxious effluvia.

"In Boone County, the causes producing the disease are not specified. It is noted, however, that it prevailed much worse along creeks. That portion of the county which borders on the Ohio River was remarkably exempt, as was supposed, owing to the sandy state of the soil, and its elevated position.

"In Woodford County, the intense heat of September was considered as the cause, malarial exhalations being presumed to be absent. Nevertheless, the village of Midway, in which the disease was more severe than in any other part of the neighbourhood, is situated upon an elevated portion of land, and is bounded on the west by Lee's Branch, which has a border of wet, marshy ground, about fifty yards wide.

"In Bourbon, it is said to have prevailed most in the vicinity of creeks and mill-dams.

"At Covington, the disease commenced early in May, and continued to the 15th of October. In Boone, it began on the 14th June, and lasted to the 24th October. At Hickman, it commenced soon after the subsidence of the June freshet, probably during the first half of July, and continued until the 1st of October. In Woodford, there had been a few cases during the summer; but on the 1st September it became epidemic, and continued so for two weeks."

Of the occurrence of dysentery in other portions of the United States during the year 1851, notices are scattered through the reports before us, but without any of those details calculated to throw light upon the etiology of the disease. We have passed over the interesting remarks on this subject embraced in the report on the epidemic diseases of Pennsylvania, in consequence of the notice that has been given of them in our Review of the Transactions of our State Society at its session of 1852, contained in a former number of this journal; in the reports there contained the same series of epidemics being described as in the report to the National Association.

The reports we are now considering, present very decided evidence of the increased prevalence of typhoid fever in almost every portion of the Union. It is true that only within a few years past the attention of physicians has been directed to the pathological characters of this form of fever, and it has come to be recognized as a distinct disease. A more correct diagnosis in reference to it being now generally adopted may account, in part, for the more frequent notice of it than formerly as an endemic of the United States. Still, we believe it will be found true that it has become actually a more common disease. In some districts of country typhoid fever would appear indeed to have superseded in a great measure the former endemic fevers of an intermittent and remittent type. This has been strikingly the case throughout the State of Pennsylvania. At the same time there would appear to have taken place a decided change in the character of nearly all diseases—they have become less sthenic—less acute. Active and direct depletion would appear to be less frequently indicated, and when resorted to, to produce more rapid and extensive prostration than formerly, while a more general and speedy resort to stimulants and tonics would seem to be demanded.

During the year 1851, scarlet fever appears to have prevailed over a large extent of the United States, varying in different sections and localities in malignancy—in some being attended with but little danger, while in others it has been particularly uncontrollable and fatal.

Erysipelas has also prevailed throughout the United States, during the period embraced in these reports to an unusual extent, assuming at many points the characteristics of a genuine epidemic. A most interesting account is given by Dr. Z. Pitcher, of an epidemic of this character which prevailed in Detroit, Michigan, in the year 1847, and again occurred in May, 1851, and extended over other portions of the State.

Repeated mention is also made of the occurrence of epidemic parotiditis at different points, and likewise of the occasional appearance of jaundice as an epidemic.

It would extend this notice to a most unreasonable length, were we to attempt to notice all the points of interest and importance embraced in the reports before us. We shall refer to only one or two more additional particulars.

Following the report which includes an account of the epidemics of South Carolina, Florida, Georgia, and Alabama, is a table by Dr. Wm. M. Boling, of Montgomery, Alabama, presenting a view of the form, type, character, duration, and result of 1035 cases of periodical fever, which occurred in his practice from the first of June, 1843, to the last day of May, 1848: together with the age, sex, and colour of the patients, and the months in which the cases occurred; and their locality, whether in city or country. We view this as a most valuable document; it presents, at one glance, all the leading facts connected with the disease to which it relates. To wade through the details of the same number of cases, when given in the form of even general his-

tories, would be a labour which few would undertake, while it would scarcely afford, with equal certainty, the same amount of useful information as may be gained by a simple inspection of these tables.

The report of Dr. Fenner, on the epidemics of Louisiana, Mississippi, Arkansas, and Texas, presents some interesting facts in relation to the sanitary aspects of those States, and of their different sections. He has carefully digested into tables that portion of the recent national census relating to the mortality of these States; the diseases being classified according to the plan adopted by Dr. J. C. Simonds, and the results of these as indicating the sanitary condition of particular sections, illustrated by a series of coloured maps. Though not convinced of the entire accuracy of the census returns of deaths throughout the United States, yet, as approximating to the truth, and certainly affording some general indication of the more common of those diseases by which life is shortened, they are not without their value.

The comparison furnished in this report of the relative mortality of Mississippi, Arkansas, Louisiana, and Texas, with that of England, and the table exhibiting the total amount and percentage of mortality from various diseases in each of the four States above named, and in Mexico, Havana, four rural districts of Cuba, Maryland, and the City of New Orleans, are curious and instructive, supposing them to be founded on reliable statistics.

We should have felt strongly inclined to copy this portion of Dr. Barton's report, had we not already extended our notice of the present volume of *Transactions* to what may perhaps be esteemed an unreasonable length.

The concluding report is from the Committee on Indigenous Medical Botany and Materia Medica for 1850-51. It presents a synopsis or systematic catalogue of the indigenous and naturalized flowering and filicoid medicinal plants of the United States, with their localities, botanical and medical references, and a short account of their medicinal properties. It was prepared by Dr. A. Clapp, of Indiana, Chairman of the Committee. It evinces great industry on the part of its author, and will be found extremely useful for future reference.

D. F. C.

BIBLIOGRAPHICAL NOTICES.

ART. XIII.—*Clinical Reports on Continued Fever, based on an Analysis of One Hundred and Sixty-Four Cases, &c.* By AUSTIN FLINT, M. D., Buffalo, 1852: 8vo. pp. 390.

THE papers composing this volume were originally published in the *Buffalo Medical Journal*, during the last three years, and are now presented, without change, in a more accessible form. They are amongst the most elaborate and satisfactory contributions to the medical history of the diseases which they treat of that have been published in the United States, and entitle their author to a distinguished position among the medical pathologists of the country. Indeed, we cannot recall any other instance of equally industrious and enlightened zeal for original observation amongst the native writers of our profession. It might be imagined in so new a country, in the absence of established and authoritative medical institutions, with our national fondness for novelty, our indomitable eagerness to discover and pursue new paths, our national acuteness of intellect, and our unrestrained competition for the vantage-ground of public applause and reward, that more energy would be directed to original researches, and more discoveries in science made, than where custom and authority are supposed to be paramount, and settled opinion is thought to have the force of law. But the reverse of all this is plainly the fact. Whether constrained thereto by a law of human intelligence which obliges the less skilled to borrow the lights of more accomplished nations, or whether diverted from scientific culture by the urgent claims of practical wants, or swept along by the swollen tide of utilitarianism, which allows no one to stand still either to contemplate or expound the laws of phenomena that are most fitted to attract attention and arrest inquiry, it cannot be denied that we have sacrificed too much and too long the artist to the artisan, and the philosopher to the practitioner. Doubtless, in some departments of knowledge, we have begun to recognize the higher aim, and have made noble efforts to pursue it. Every year the scattered and formless elements assume more and more determinate shapes, and we may detect in them the germs and nuclei of future discoveries of truths which shall take their place as permanent portions of the great structure of knowledge.

Among the examples of successful inquiry in the field of American medicine, none is more remarkable than the one before us. The reader may trace in it the gradual education of the author's mind to a rigorous system of inductive reasoning, and watch the interesting progress of a sincere, but at first, an ill-assured effort to extract the laws of diseases from a classification of their phenomena. The first of the three series of cases which the author submitted to analysis presents a somewhat defective arrangement, and the comparison of examples which a more prolonged habit of observation proved to belong to different categories. In the second series, a more assured and penetrating analysis discloses more distinctly the diversity of type of at least two of the classes which furnish the materials for the series. In the third, the truth at last stands fully revealed, and there is no longer any doubt as to the diversity between the two principal diseases, *typhus* and *typhoid fever*, which had formed the chief subjects of inquiry. This gradual and progressive advancement towards a conclusion which in the end bears all the marks of a demonstrated problem, is one of the most convincing proofs of its harmony with truth, and of the candor with which the investigation was prosecuted.

By the arrangement of the matter here described, each series of cases supercedes to a certain extent the previous one. Indeed, each succeeding one was published for the purpose of perfecting the conclusions already reached, and correcting the errors into which a limited experience had led the author.

But this circumstance renders it impossible to give our readers an abstract of the work. It is to be hoped that when new materials in sufficient number shall have been collected, the author will unite them, with what he has already published, in a systematic treatise, which shall contain distinctly the ultimate conclusions he may then have reached. Such a work would, we have no doubt, be heartily welcomed by the profession.

We had marked a number of passages for comment; but finding that several of the statements in them were materially modified by the author after more ample experience, we thought it but just that his opinions should not be too critically judged in their present form. In the *treatment* of typhus and typhoid fever, the author does not appear to have deviated very materially from the most approved methods, his management of the former disease being chiefly by stimulants, and of the latter by stimulants and such means conjoined with them as seemed needed to meet special indications. The employment of diffusible stimuli in typhoid fever is very probably required more frequently than writers of the Parisian school advise; but it is certainly an exaggeration of their necessity to speak of their use in *continued fever*, without specifying which of the types they are best adapted to cure. In typhoid fever, they are sometimes indeed necessary, especially when the patients are of feeble constitution, or have indulged habitually in alcoholic drinks; but as a general rule, this disease runs its course with fewer accidents when they are withheld. Typhus, on the contrary, calls for diffusible stimuli almost from the start, and he would be a bold man, indeed, who should attempt to combat the malady without them.

Dr. Flint made some experiments with quinia, with opium, and with the wet sheet as employed by the hydropathists. The first had no appreciable effect upon the disease. The second, he thinks, "does, in large doses, in some cases, possess more or less power to affect the progress of continued fever." He prescribed as much as four grains at a dose. The few cases he reports scarcely sustain this opinion. Of more than one of them, too, the diagnosis is very doubtful. The use of the wet sheet seems to have been profitable in several instances, by reducing the temperature of the skin, the frequency of the pulse, and the febrile delirium. But it does not appear to have been systematically employed, and further experience of its good effects would be needed to recommend it.

The author gives a succinct history of several cases of "doubtful type," among which, as well as among those contained in the body of his essay, there are some which we take to have been instances of simple continued fever. This is, undoubtedly, an independent disease, distinguished chiefly by its sudden onset, its short course of seven or eight days, and its rapid convalescence. It is very often mistaken for typhoid fever of a mild type.

Still other cases are included by the author amongst those of typhus and typhoid fever, which he finally recognizes as examples of what has been denominated *relapsing fever*. It acquires this name from the circumstance that convalescence apparently takes place between the fifth and the tenth day, and yet, after an interval of from five to eight days, another attack occurs, and is frequently preceded by a chill. The second attack is equally severe with the first, if not more so, but generally terminates in cure. Sometimes, however, a third, and even a fourth relapse has been observed. The disease is seldom fatal; and when death does take place from some accidental cause, no characteristic lesion is discovered.

The concluding paper of the volume before us treats of the contagious character of typhoid fever, as illustrated by the occurrence of the disease in Erie Co., New York. The facts here related demonstrate the possibility of the disease being propagated by contagion, and go to strengthen the conclusion which had already been reached by Louis and other continental observers. As this writer remarks, it is only in the dissemination of the malady in country places that its contagiousness becomes manifest, for there only can the communication of persons with the sick and with one another be clearly traced. At the same time, it must be admitted to be less generally contagious than the eruptive fevers, properly so called, although like them it would seem to be rendered more or less transmissible by inappreciable causes.

A. S.

ART. XIV.—*Operative Surgery Illustrated: containing more than nineteen hundred Engravings; including two hundred Original and fifty Colored Drawings, with Explanatory Text*. By R. U. PIPER, M.D. Also, a Chapter upon the Use of Ether in Surgery, from the *Transactions of the American Medical Association*, written at the request of a Surgical Committee of that body, by HENRY J. BIGELOW, M.D., Professor of Surgery in the Medical School of Harvard University. Boston: Ticknor, Reed, & Fields, 1852: 8vo. pp. 384.

PUBLICATIONS upon operative surgery have been very abundant of late, in every language which boasts of possessing a medical literature. Some have been limited to certain specialities, others have been general in their application. In this country alone, the number of treatises on general operative surgery, published within an inconsiderable lapse of years, is not small. We can enumerate, as having come within the limits of our own observation, Mott's edition of Velpeau's valuable work; Pancoast's *Operative Surgery*; Malgaigne's excellent book, translated by Brittan, and reprinted in this city; Dr. Smith's *Exposition of American Operative Surgery*, just issued; and the translation of the volume of Bernard & Huette, now in process of publication in New York. Besides these, there are several valuable treatises on the *Practice of Surgery*, including the operative branch of the science, which have been reprinted from foreign originals—as Liston's, Fergusson's, Miller's, Druitt's, Skey's, Pirrie's, Bransby Cooper's, &c. &c., and others emanating from American authors, e. g. Hastings's *Surgery*.

The appearance, therefore, of another book upon this subject, is a matter for gratulation or otherwise, according to its intrinsic and peculiar merits; for, under the circumstances, it cannot certainly be supposed to be *needed*. In this light, we propose to examine Dr. Piper's book.

The text consists of explanations of, or comments upon, the plates; sometimes a few words suffice to explain the latter; sometimes, as in the description of important operations, several pages are thus occupied. Generally, the author uses his own language; occasionally, the text is marked as a quotation.

As is usual in works of this kind, many of the plates are devoted to representations of the various instruments used in surgical operations, and the manner in which they are employed or applied. It would be entirely unnecessary, and perhaps impossible, to figure and describe *all* the instruments and implements which have been introduced into the armamentarium of surgery; and Dr. Piper does not attempt to do this. His selections have been made from the most approved French, English, and American patterns, and are, as a general rule, judicious.

The *ninth* plate, and the accompanying explanatory remarks, refer to the various kinds of suture, to the application of adhesive strips, and to "Mr. Fergusson's knot for strangulating tumours with broad bases." Plates *tenth* and *eleventh* show the veins and arteries of the different regions in which phlebotomy and arteriotomy are most commonly practised, and the mode of performing these operations.

The succeeding plates, to the *seventeenth* inclusive, exhibit the main arteries of the different regions, at the points ordinarily selected for the ligation of these vessels. Some of these drawings, though small, are sufficiently well executed to be of assistance to the operator; others, again, exhibit so little of the relational anatomy of the bloodvessels as to be of no use whatever.

Plates *eighteen* and *twenty-one* represent the ligaments of the joints. The views of the male and female axillæ, the surgical dissection of the axillary and brachial regions, and that of the arm and forearm, which are given in plates *nineteen* and *twenty*, seem somewhat out of their proper place; they would naturally appear in connection with others which relate particularly to the bloodvessels; but as now located, they inflict a violent separation upon the two plates first enumerated, which should be studied together. The pictures here introduced of the axillary regions are decidedly the best in the book, especially the

first of the twentieth plate. They are evidently copied from Maclise; yet Dr. Piper fails to acknowledge their parentage, though he has done this with reference to some other drawings taken from the source just named.

The plates intervening between the *twenty-first* and the *sixty-third* are chiefly illustrative of the various *amputations* and *resections*. Many of these operations are described at length; others are merely indicated by the names of their suggestors. Interspersed among them are drawings of *tumours*, of *caries* and *necrosis* of bone, of violent *injuries* to the limbs, &c., for which amputation was performed in individual cases; and there are also a few delineations of *trephining* and other operations upon the cranium and the face.

The operations figured in the succeeding plates, as far as number 95, are numerous and varied, but are not arranged in any very convenient or definite order—those of the same kind and for the same affection being often scattered about as if accidentally. Among them may be mentioned operations for the removal of the upper and lower jaw, the clavicle, the breast, the parotid gland, and tumours of various regions; operations upon the larynx, trachea, and œsophagus; for harelip, and fissures of the palate; for club-foot, and other distortions; rhinoplastic operations; paracentesis of the chest, abdomen, and scrotum.

Next to these, wounds of the abdomen, with and without concomitant injury to the intestines, are depicted, together with many of the plans of treatment recommended therefor. (Plates 95 and 96.)

The varieties of hernia are exhibited in the following eight plates (97 to 104 inclusive), with the accident which sometimes follows this affection, artificial anus. The drawings are generally well executed, and the explanatory remarks are unusually full, as compared with those appended to the representations of some other important surgical maladies. But neither in the drawings, nor in the descriptions of the operations, and other mechanical modes of treating hernia, do we find anything new, or anything which may not be more profitably sought for in most of the ordinary treatises upon the practice of surgery.

The succeeding seven plates exhibit operations upon the anus and rectum, and the external genito-urinary organs of the male, the instruments employed, and some of the diseases affecting these parts.

Calculus—the operations performed for its removal from the bladder and urethra, and the instruments by which these are accomplished—constitutes the subject of the plates from No. 117 to 130 inclusive, with the exception of a few drawings which have been carelessly thrown from their proper position; e. g. an illustration of M. Reybaud's instrument for removing pus from the *pleural cavity*, and of a canula for the *rectum*.

Dislocations and *fractures* are next exemplified in the plates from No. 131 to 160 inclusive. The figures are taken chiefly from the works of Sir Astley Cooper, Mr. Liston, Mr. Fergusson, and Mr. Druitt.

Plates 161 and 162 contain illustrations of numerous *bandages*.

Diseases of and operations upon the *eye* and its appendages are exhibited in the ten plates next succeeding, together with a great variety of instruments for their treatment.

Plates 173, 4, 5, 6, 7, represent additional varieties of club-foot, and other congenital and acquired distortions, with some of the mechanical contrivances employed to overcome them. Here again we have an instance of the want of arrangement, so far at least as we can judge, which frequently shows itself in this volume; for, in plates 65, 6, 7, and 8 are drawings of similar deformities. The 178th plate exhibits illustrations of vesico-vaginal and recto-vaginal fistula, and of lithotomy in the female; and the question very naturally presents itself, would it not have been better to group these with the similar operations practised upon the male, which are represented in plates 105–108?

The 179th plate is devoted to representations of instruments used for cupping and scarifying, for cauterizing, and of different kinds of moxa.

The implements employed in the extraction of teeth are shown in the 180th plate.

On the 181st and 182d plates are portrayed an example of rupia, various forms of aneurism in different situations, effects of wounds upon arteries, a

case of carbuncle, one of fungus hæmatodes, and an abscess of the œsophagus communicating with the aorta.

The subject of the next plate is the celebrated case reported in this journal, for July, 1850, by Dr. Bigelow, of Boston, in which an iron bar was forced through a man's cranium without fatal consequences.

The 184th exhibits a case of necrosis of the humeral bone, of excision of the lower jaw, of paronychia, and fragments of necrosed bone.

The 185th exemplifies the operation of ligatures applied for popliteal aneurism; a case of the same affection cured by the application of ice; and the "articulation of the ankle bones, with reference to the amputation through the tarso-metatarsal articulation."

The 186th and last plate exhibits the efficacy of adhesive strips as a means of extension in fracture of the femur; "and a case of a patient of the author whose finger was torn off by machinery." It will be observed that the subjects of the last six plates have all been previously depicted, and their value has been in some measure diminished by not being introduced in proper connection.

We have thus presented our readers with a sort of *Table of Contents* of this volume, in order that they may see the amount and the arrangement of the readable and pictorial matter therein contained.

As to the real value of Dr. Piper's book, its capability of supplying a want in one's library, our readers may judge from the sketch we have presented. The author has undoubtedly laboured assiduously, and, we may add, successfully, to accumulate a great variety and number of drawings to illustrate most of the diseases and injuries which surgeons are called upon to treat; and he has accompanied the figures with verbal descriptions of different methods of performing the more important operations. But we really cannot perceive that the book possesses any advantage over the standard illustrated treatises on the Practice of Surgery which are now generally accessible to the profession and to students, and, as a reliable authority, it seems to us to be inferior to most of them. The text contains nothing which may not be better obtained from the sources just referred to; the drawings are generally copied from these (very many of them being thus appropriated without the slightest acknowledgment on the part of the author), and, are certainly not better, or more expressive, than the wood-cuts, with which several of the more recent of them are illustrated; and the want of system in the general arrangement of the materials will, we should suppose, render it a very inconvenient book of reference.

F. W. S.

ART. XV.—Second Report of the General Board of Health on Quarantine. Yellow Fever. Presented to both Houses of Parliament, by command of Her Majesty. London, 1852: 8vo. pp. 414.

Appendix (C) to the Report of the General Board of Health on the Epidemic Cholera of 1848 and 1849. Abstract of Report, by JAMES WYNNE, M. D., on *Epidemic Cholera, as it prevailed in the United States, in 1849 and 1850.* Presented to both Houses of Parliament, by command of Her Majesty. London, 1852: 8vo. pp. 93.

Further Observations on that portion of the Second Report on Quarantine by the General Board of Health, which relates to the Yellow Fever Epidemic on Board Her Majesty's Ship *Eclair*, and at *Boa Vista* in the Cape De Verde Islands. By J. O. McWILLIAM, M. D., F. R. S., R. N., Medical Inspector of Her Majesty's Customs. London, 1852: 12mo. pp. 40.

THE report of the General Board of Health of Great Britain on the subject of Quarantine, especially in reference to Yellow Fever, is a document of the deepest interest to the physicians of our own country, in many parts of which the disease continues to occur, if not as an annual, at least as a not unfrequent epidemic; while the commercial intercourse between our principal ports

and those within the yellow fever regions, renders the subject of its origin and mode of propagation one of vital importance. The question of the contagiousness of yellow fever is examined in the report before us, not only with reference to the facts, of a negative character, that have been recorded by the best and most authoritative observers, but also in reference to those which have been adduced in proof of the affirmative of the question, at different periods, by physicians who have observed the disease in various countries. All the facts necessary to the formation of a correct conclusion appear, indeed, to have been sedulously sought after by the Board, and their true value and relationship carefully and candidly examined. The whole of these facts, it is clearly shown in the report before us, prove the origin of the yellow fever, in every instance, from local morbid causes, and the impossibility of its propagation, under any circumstance, by a contagious matter or miasm generated by the disease itself; consequently, the insufficiency and inutility of quarantine regulations to prevent its introduction into any place, or to arrest its spread in those localities where it prevails. This is precisely the same conclusion at which the most eminent of our own physicians, who are conversant with the disease have arrived, and it is, most unquestionably, the correct one. But while no good can result from a quarantine of persons coming direct from places where yellow fever is prevailing, or even of those actually labouring under the disease, we are not persuaded that it is perfectly safe to allow vessels from sickly ports, or on board of which disease of a malignant character has made its appearance during the voyage, to enter a port, and land their cargoes in the midst of a populous community. Disease we have known to be in this manner introduced into our own city. So far as relates to a detention of such vessels at a proper distance from the port, until they shall have undergone a thorough cleansing and ventilation, we believe that quarantine regulations are useful; farther than this, our experience, acquired during many years service as a member of the Philadelphia Board of Health, has taught us such regulations, except in the case of smallpox, are not only useless, but positively injurious.

An enumeration of the several particulars, discussed in the report before us, will give to our readers a general idea of the leading positions which the facts presented are presumed to establish. We give this enumeration, alone, from our inability to do entire justice to the report excepting by a series of extracts, the length of which would extend our present notice to a most unreasonable length.

"Resemblances between yellow fever and cholera. Yellow fever not traceable to contagion. Sporadic cases. Seclusion affords no protection. Advantages of a removal from infected localities. Non-transmission of yellow fever to other patients in hospitals. Comparative mortality in different localities, showing the presence of the localizing conditions: of overcrowding; of filth; of want of drains, and bad drains; of dampness, swamps, and marshes; yellow fever capable of being produced by these causes." An examination is entered into of the more prominent of the alleged cases of importation, viz.: The "Hankey," at Grenada, 1793; the "General Elliott," at Martinique, 1796; the "Dolphin," at Cadiz, 1800; the "Transports," at Gibraltar, 1810; the "Fortune," at Gibraltar, 1813; the "Grand Turk," at Barcelona, 1821; the "Bann," at Ascension, 1825; the "Dydden," at Gibraltar, 1828; the "Growler," at Barbadoes, 1847; the "Tentadora" and "Duarte," at Oporto, 1851; and the "Eclair," at Boa Vista, 1845.

The examination of these several instances in which the yellow fever is presumed to have been introduced by infected vessels and crews, will convince every candid mind that the evidence by which the fact of the importation of the disease in either case, save the last, is supposed to be established, is, to say the least of it, small in amount, and doubtful in quality. We except the case of the "Eclair," because, after a careful and impartial examination of all the evidence that has been presented in relation to the circumstances attending the arrival of this vessel at Boa Vista with fever on board, and the appearance immediately after the landing of a portion of her sick crew upon the island, of the same fever, among the inhabitants, and its subsequent spread from individual to individual, has convinced us that, if it be possible to prove the importa-

tion of any disease, Dr. McWilliam has done so in relation to the fever in question. We have, ourselves, no belief in the contagiousness of yellow fever. Our views in relation to the etiology of the disease; our prejudices, if we have any, are decidedly opposed to the doctrine of importation, but we cannot reject the conclusive evidence adduced by Dr. McWilliam, in proof of the introduction of fever into Boa Vista by an infection derived from the sick landed there from on board the *Eclair*: evidence, that has been in no degree invalidated by the counter reports which have been made in reference to the fever in question. We have our doubts, it is true, as to the fever, thus introduced, being actually yellow fever; but whether it was so or not, we coincide fully with Dr. McWilliam in the following statement made by him, near the close of his "Observations" on that portion of the Report of the General Board of Health, which relates to the case of the *Eclair*:—

"In my humble opinion, the history of the epidemic at Boa Vista comprehends every condition upon which the proofs of the infectiousness of a disease are supposed to rest, namely:—

"The healthiness of the island before the arrival of the *Eclair*, with fever on board.

"The outbreak of the same disease among the inhabitants of the island, within a reasonable period afterwards.

"The immunity of distant villages for long periods until after the arrival there of infected persons, and the radiation of the disease in every district from infected foci.

"The comparative immunity from the disease obtained by persons who adopted common but partial precautionary measures against infection.

"The absolute immunity from the disease procured by persons who adopted strict measures of isolation and segregation."

In the "Observations" referred to, Dr. McWilliam points out a number of misstatements which occur in the Report of the General Board of Health, in relation to some of the important points connected with this subject.

The following are the general conclusions at which the Board of Health have arrived from a consideration of the evidence respecting yellow fever presented in the report before us:—

"1. That yellow fever epidemics break out simultaneously in different and distant towns, and in different and distant parts of the same town, often under circumstances in which communication with infected persons is impossible.

"2. That yellow fever epidemics are usually preceded by the occurrence of individual or sporadic cases of the disease, which sporadic cases are likewise common in seasons when no epidemic prevails.

"3. That yellow fever epidemics, though occasionally extending over large tracts of country, are more frequently limited as to the space over which they spread, often not involving the whole of a town, and, sometimes, not even any considerable district of it.

"4. That yellow fever epidemics do not spread from district to district by any rule of gradual progression, but often ravage certain localities, while they spare entirely, or visit very lightly, others in the immediate neighbourhood, with which the inhabitants are in constant intercommunication.

"5. That yellow fever epidemics, when they invade a district, do not spread from the houses first infected to the next, and thence to the adjoining, and thus extend as from a centre; but, on the contrary, are often strictly confined to particular houses in a street, to particular houses on one side of a street, to particular rooms in the same house, and often even to particular rooms on the same story.

"6. That, in general, when yellow fever breaks out in a family, only one or two individuals are attacked, commonly the attendants upon the sick escape; and when several members of a family are successively attacked, or the attendants on the sick suffer, either the epidemic was general in the locality, or the individuals attacked had gone into an infected district.

"7. That when yellow fever is prevalent in a locality, the most rigid seclusion in that locality affords no protection from the disease.

"8. That, on the other hand, so great is the success attending the removal

from an infected locality, and the dispersion of the sick in a healthy district, that by this measure alone the further progress of an epidemic is often arrested at once.

"9. That such dispersion of the sick is followed by no transmission of the disease, not even when the sick are placed in the wards of a hospital among patients labouring under other maladies.

"10. That no one of the preceding facts can be reconciled with any other conclusion than that, whatever may be the exciting cause of yellow fever, it is local or endemic in its origin; and the evidence of this conclusion is, therefore, cumulative.

"11. That the conditions which influence the localization of yellow fever are known, definite, and, to a great extent, removable, and are precisely the same as the localizing causes of cholera and of all other epidemic diseases.

"12. That, as in the case of all other epidemic diseases, in proportion as these localizing causes are removed or diminished, yellow fever ceases to appear, or recurs at more distant intervals, and in milder forms.

"13. That, besides the common external localizing causes, there is one constitutional predisposing cause of paramount importance, namely, non-acclimatization, that is, the state of the system produced by residence in a cold climate; in other words, European blood exposed to the action of tropical heat; the practical lesson being, that the utmost care should be taken to prevent individuals or bodies of men, recently arrived within the yellow fever zone, from going into a district in which the disease actually exists, or has recently been present.

"14. That the means of protection from yellow fever are not quarantine restrictions and sanitary cordons, but sanitary works and operations, having for their object the removal and prevention of the several localizing conditions, and, when such permanent works are impracticable, the temporary removal, as far as may be possible, of the population from the infected localities."

The abstract of a report by Dr. James Wynne, on epidemic cholera, as it prevailed in the United States in 1849 and 1850, printed as one of the appendices to the Report on Cholera of the General Board of Health of England, presents a very succinct but truthful outline of the leading facts having a direct bearing upon the etiology of epidemic cholera observed during the prevalence of that disease in this country during the years indicated.

We present the concluding remarks of Dr. Wynne; not that we can subscribe to them, when carried out to the full extent they admit of, but because we believe that they are strictly true in their application to the etiology of the disease which is the immediate subject of Dr. Wynne's report.

"In all these circumstances, the adjuncts in the production of cholera are found to maintain a striking resemblance to those which produce malarial diseases. If the question was propounded to me, After the collection of all these facts, can you tell what is the nature of the cause that produces cholera? I should, unhesitatingly, reply that *I could not*. But I should give the same answer if I were interrogated concerning the nature of autumnal fever. It is true, I might reply in regard to fever, that it depended upon the presence of malaria. But what is malaria? It is the decomposition, under certain circumstances, of vegetable matter. These circumstances are, the presence of air, heat, and moisture. Whenever these elements unite in due proportion, fever is produced, but if either be wanting, malaria is not generated. Hence, during the cold of winter and the dryness of mid-summer we have no fever; but with the decomposed vegetation of autumn, united with the heat and moisture of that season of the year, fevers prevail. Heat and moisture cannot produce fever; it requires decomposed matter, uncleanness, and filth. These are precisely the circumstances under which cholera makes its appearance, and the reader will have had frequent occasion to observe how much it is under the conjoint influence of elevated temperature and moisture, and how steadfastly it dwells among filth and uncleanness.

"I do not assert that the cause of autumnal fever and cholera are identical; but I do aver that the whole history of the epidemic, as it prevailed in the

United States, proves that it cannot exist in the absence of those conjoined elements known to produce fever; and no facts more fully substantiate this position, than those connected with its prevalence at the Baltimore Almshouse, and its absence in the city as an epidemic. No person will fail to recognize, in the filthy condition in which this establishment was kept, a sufficient cause for disease, and no one can doubt the influence it exercised over the spread of cholera in this immediate locality.

"If this position be fully substantiated, have we not the means in our own hands of arresting its desolating ravages? Does not this disease present itself as a teacher as well as a scourge? Every one must admit the justice of the following observations of Professor Caldwell: 'Cholera, though a fatal scourge to the world, will, through the wise and beneficent dispensation under which we live, be productive of consequences favourable alike to science and humanity. Besides being instrumental in throwing much light on the practice of physic, it will prove highly influential in extinguishing the belief in pestilential contagion, and bringing into disrepute the quarantine and sanitary establishments that have hitherto existed.'"

D. F. C.

ART. XVI.—*General Pathology, as conducive to the establishment of Rational Principles for the Diagnosis and Treatment of Disease. A Course of Lectures, delivered at St. Thomas's Hospital during the Summer Session of 1850.* By JOHN SIMON, F.R.S., one of the Surgical Staff of that Hospital, and Officer of Health to the City of London. Blanchard & Lea: Philadelphia, 1852: 8vo. pp. 211.

THESE twelve lectures present a more interesting and instructive exposition of the leading principles of general pathology, as deduced from the best authenticated series of observations, and the facts that have been developed by the application of chemical analysis and microscopic investigation to the study of disease, than many treatises that have been published upon the same subject, of greater bulk and pretensions.

The lectures are written in a familiar but clear and pleasing style. If we were disposed to find any fault with them, it would be that they are too concise; or, perhaps, to speak more correctly, there is too much important matter crowded into too small a space. There is, in fact, scarcely one of the lectures but contains sufficient materials for a volume equal in size with the one before us. The conciseness of manner with which the important questions embraced in these lectures are discussed by Dr. Simon, produces, it is true, neither obscurity nor confusion in his teachings; it taxes, however, to a great extent, the attention of the reader, while the true value of the doctrines advanced, and their relations to the diagnosis and treatment of disease, are less readily perceived than would have been the case had a few more sentences been occupied in their exposition.

We have been particularly pleased with the lecture on scrofula, and that on morbid poisons. The views advanced in the first of these lectures strike us as being those which best accord with what we know of the particular circumstances under which tubercular disease develops itself; for, with Dr. Simon, we believe that all those affections to which the term scrofulous is properly applicable are to be considered as one or other of the forms of tuberculosis; they accord, likewise, with the symptoms and course of the disease, and the facts developed in relation to it, by the researches of the pathological anatomist; it is these views which, in our opinion, can alone form the basis of a successful plan of preventive or curative treatment.

Were we to discuss with the lecturer the question of tuberculosis, in all its bearings, we should find occasion, on one or two points, to question the correctness of the conclusions at which he has arrived.

We admit with him that tubercular matter is a morbid exudation from the blood or lymph; that it has its rise in a diseased condition of the blood, and that this diseased condition of the blood is one affecting its development. We believe that the vessels which furnish the materials of this exudation are in a state of hyperæmia or stasis; that although tuberculous deposits cannot be strictly said ever to be the product of inflammation, yet every cause calculated to retard the circulation of the blood through an organ promotes the deposit in that organ of tuberculous matter, and hence it is that pulmonary tuberculosis is most common in those climates in which bronchitis and pulmonary inflammation are of frequent occurrence. Tubercular phthisis may effectually destroy the structure of the lungs and cause the death of the patient without the occurrence of inflammation.

We have strong doubts whether tubercular matter possesses, of itself, any tendency to become softened; with Professor Kostlin, of Stuttgart, we believe that this softening is always determined by a serous fluid derived from the vessels by which the tuberculous deposits are surrounded.

We recommend to our readers, nevertheless, an attentive study of Dr. Simon's lecture on scrofula. We hesitate not to say that from it they will derive more correct views of the general pathology of tuberculosis than from any source with which we are acquainted.

We had marked one or two paragraphs from the lecture on morbid poisons, in order to show the very ingenious and plausible views of the author in reference to the principle of infective disorders in the human subject; but as these extracts are somewhat long, and from a work that, from its intrinsic value, and the cheap form in which it is presented by the American publishers, cannot fail to find a place upon the reading-table of every student, we refrain from presenting them, believing they will be read, and with more interest and profit, in connection with the other portions of the lecture of which they form a part.

D. F. C.

ART. XVII.—*Recherches sur la Locomotion du Cœur.* Par A. A. VERNEUIL, Docteur en Médecine, etc. etc. Paris, 1852: 4to. pp. 58. *An Inquiry into the Locomotion of the Heart.* By A. A. VERNEUIL, M.D.

It is not our intention, in noticing the very able inquiry of Dr. Verneuil, presented as his thesis for the degree of Doctor in Medicine to the Faculty of Medicine of Paris, to enter into an examination of the correctness of the views he has advanced, or to test the truth of the anatomical exposition upon which those views are based; we leave this to such of our readers as can command the requisite time and opportunities for the work. Our object, on the present occasion, is simply to present some account of the conclusions at which the author has arrived, and, in so doing, our labour will be chiefly confined to a translation of his language into English.

The locomotion of the heart, remarks Dr. Verneuil, so often verified, and by such various means, has become one of the best-established facts in physiology. This locomotion is composed of several successive acts, which we will now pass in review. During the ventricular systole, the base of the heart remaining immovable, or nearly so, its point approaches the latter, and, at the same time, it is carried forward on the side of the anterior face of the ventricular mass, which incurves itself in such a manner as to present a plane surface, or, according to some authors, a curvature with an anterior concavity; the ventricular mass executes, also, another movement, in consequence of which its point, at the same time that it rises, is carried from left to right in describing the slight arc of a circle, combined with a sort of rotation upon the supposed axis of the heart. These movements are so combined as to constitute one of a spiral character.

During the diastole, the heart resumes its primitive position; the ventricular mass becomes lengthened, and dilates, especially towards its anterior part.

The heart seems to unroll itself. Its point, as it removes itself from the base, describes a spiral motion from right to left, at the same time it is depressed, and conceals itself, if we may be allowed the expression, in the depression on the internal face of the left lung.

During the systole, the form of the ventricles is variously modified. We observe:—

1. The shortening of the ventricular mass; 2, the flattening or incurvature of its anterior face; 3, a swinging motion, in consequence of which the point becomes more salient; 4, a twisting or spiral motion from left to right, upon the longitudinal axis of the ventricular mass, in consequence of which the left extremity of the heart (the point) approaches the median line, while the right extremity of the ventricles (the base of the right ventricle) is depressed, and is seemingly carried slightly backwards; 5, the base of the left ventricle remains nearly immovable.

In the diastole, the ventricles, distended by the blood, resume their primitive form and position, in undergoing changes directly the reverse of those just described. 1. The ventricular mass augments in volume, the point is removed further from the base and from the anterior face of the ventricular mass. 2. The point swings backwards, redescends, and sinks towards the spine. 3. It describes the arc of a circle from right to left. 4. The base of the right ventricle becomes more salient in front.

Such is the locomotion of the heart, which is produced by the organ itself, for, when the heart of an animal is removed from the body, and placed upon a table, we observe it still to contract, and become modified in its form; but, in this experiment, as M. Beau has well observed, many of the movements enumerated above do not take place; among others, all the movements that have been indicated as occurring during the diastole.

The heart, in fact, still contracts, and becomes condensed; but when the contraction ceases, its muscular fibres relax, and the heart becomes soft and flaccid, but it does not dilate; its contraction, even, does not proceed in the same manner as when it is distended by the blood during the diastole. M. Beau has with propriety, therefore, objected to the explanation of the normal mechanism of the heart from the phenomena observed when that organ is laid upon a table. M. Verneuil goes even still further, and maintains that, in relation to the locomotion of the heart, we cannot compare what takes place in an animal or in man, when the parietes of the thorax are intact, with what we observe in a fœtus affected with præsternal ectopia, or in an animal whose pericardium has been laid open, even when care has been taken to leave the pleuræ in their normal condition. When, he remarks, the thorax is in its ordinary state, the point of the heart, instead of having a tendency to approach or strike against the parietes of the chest, strives, as it were, to quit these during the systole, elevates itself, and reaches the level of the fourth rib. The dissections that M. Verneuil has made, as well as the attentive consideration that he has given to the distribution of the muscular fibres of the heart, have convinced him, even in the absence of vivisections, that in the normal systole the point of the heart ascends from left to right; but, without being carried either forwards or backwards, it follows simply the posterior surface of the anterior thoracic parietes.

In the state of repose, the point of the heart corresponds most generally to the level of the fourth intercostal space, or at the most to the level of the fifth rib with its cartilage; now, as during the systole, the apex of the heart is elevated; it is impossible for it, therefore, to strike against the chest on a level with the fifth or even the sixth intercostal space; that is to say, one to three finger-breadths lower than the spot where the apex of the heart is found when in a state of repose. In making the impulse of the heart to coincide with its systole, we shall find a difficulty, also, in explaining how it is frequently so distinctly felt at the epigastrium.

In his second chapter, M. Verneuil enters into a detailed examination of the locomotion of the heart and of the question immediately resulting from it, the cause of the heart's impulse against the thoracic parietes. He passes in review the opinions of the leading authors who have treated on these subjects, and then remarks that the locomotion of the heart is so intimately connected with

the stroke of the ventricular mass upon the parietes of the chest, that most observers, and particularly the more recent, have occupied themselves entirely with a consideration of the latter phenomena—the præcordial impulse. Enchained by the results of experiments which they have not taken the trouble to repeat, they take it for granted that it is during the ventricular systole that the impulse of the heart against the chest takes place. A great number of authors whose good sense taught them that it must be at the moment when the heart is increased in its length and breadth that it imparts a shock to the thoracic parietes, admit the coincidence between this shock and the systole of the ventricles, but very reluctantly, knowing that the heart during its systole becomes shortened. They find themselves surrounded by these three difficulties:—

1. The base of the heart is immovable, and serves as a *point d'appui*.
2. The apex approaches the base; while at the same time,
3. The apex is carried in a contrary direction towards the walls of the thorax against which it strikes.

In place of at once leaping over the barrier which impedes their approach to the truth, rather than reject the authority of Harvey and of Haller, they have endeavoured to discover some especial cause by which the movement of the heart at the same time from and towards the anterior walls of the chest could be explained. They have accordingly had recourse to a change in the curvature of the aorta and pulmonary arteries at their origin from the heart; to the diastole of the auricle and its impulse against the vertebral column; to the auriculo-ventricular reflux; to the impulse resulting from the return of the column of blood to the auricles. No one of which can be established as the cause of the præcordial shock.

They have adopted, in the absence of any better, the opinions of Ferrein and of Senac, to which Haller in some measure submits; but he, in common with many of the modern physiologists, reserves for himself an escape by the admission that the arrangement of the muscular fibres of the heart may, in fact, be in part the cause of its impulse against the chest.

In alluding to the fact that Galen had shown that the heart, detached from the body, still pulsated—which is mentioned by every writer on the subject—a fact which proves incontestably that the movements of the heart are produced solely by the action of its own muscular fibres—M. Verneuil remarks, that the error into which physiologists have been led, notwithstanding their familiarity with this, is pardonable, inasmuch as, although the heart, when it is laid bare, is shortened during the systole, its apex is at the same time carried forward. Hence it was a natural conclusion, that its impulse against the anterior walls of the chest occurred during the systole. It was not considered that, when the thorax is laid open, the heart is no longer in the same condition as it is when the thorax is in its normal state, any more than the lungs are when the pleuræ are laid open; that a certain portion of the anterior surface of the heart can never be removed from their contact with the inner face of the anterior parietes of the chest; that it cannot alternately approach and recede from these, as it does when the pericardium is opened; that there is never any empty space within the cavity of the latter so long as the thorax is intact; and, consequently, that the conditions necessary for an impulse of the heart against the thoracic parietes do not exist, but only for the simple movement of sliding from above downwards, and from right to left during the diastole, and in the opposite direction during the systole. It has not been remarked, further, that the impulse of the apex of the heart takes place between the fifth and sixth ribs, and extends downwards, while the apex of the heart during the systole, on the contrary, is elevated to a point corresponding with the fourth intercostal space, on a level with the junction of the fourth rib and its cartilage; that the impulse should extend upwards, if it was effected during the ascending movements of the heart; and that the heart cannot attain the sixth intercostal space unless violently distended.

M. Verneuil refers the locomotion of the heart solely to the arrangement of the muscular fibres of the organ itself. He remarks, that the systolarly movements are not merely fortuitous and without utility; on the contrary, they were

necessary in the human subject, at least, in consequence of the position of the heart, and its relation to the other viscera contained within the thoracic cavity.

In proceeding to describe the locomotion of the heart from the arrangement of its muscular fibres, M. Verneuil remarks, let us suppose, at first, to simplify, that the heart is placed vertically, and we find that:—

“1. The right ventricle is not upon the same plane as the left; it is placed upon a higher plane, and while the latter forms almost the entire apex of the heart, the former projects considerably at the base of the organ. In the early period of utero-gestation, the two ventricles have nearly the same length, and are situated side by side. It would seem that subsequently the two ventricles experience a lateral gliding motion upon each other, by which the left descends towards the apex, while the right mounts towards the base. This comparison, it is true, is altogether ideal; it is simply presented to explain the change that the different development of the two sides of the heart has produced in the relative position of the ventricles. Thus the right ventricle has passed before and to the right of the left. The infundibulum contributes in a great measure to augment the height of the left ventricle anteriorly.

“2. It hence results that the anterior face of the heart represents a scalena curvilinear triangle, of which one side is formed by the left edge of the heart—this is the shortest, and appertains to the left ventricle;—another side is formed by the right edge of the heart—it is the longest, and appertains to the right ventricle;—the third side corresponds with the base of the ventricular mass.

“3. The inferior or posterior face of the heart, on the contrary, represents, very nearly, an isosceles triangle, of which the base corresponds to the base of the ventricular mass; that is to say, to the inter-auriculo-ventricular depression. The left side of the triangle is formed by the left ventricle, and the right side by the right ventricle. These two sides are almost equal; because the right ventricle, being carried more forwards, takes, relatively, less part in the formation of the inferior-posterior face of the heart.

“4. The anterior face of the ventricular mass is higher in front than behind; this excess in height is the greatest, however, at the right portion of the anterior face of the organ, on a level with the infundibulum of the right ventricle.”

In regard to the structure of the heart, M. Verneuil remarks:—

“This organ is composed of several planes of muscular fibres.

“1st. The superficial unitive fibres, common to the two ventricles.

“2d. The curved or looped fibres, proper to each ventricle.

“3d. The deep-seated fibres of the ventricles, constituted in great part of the deep-seated branches of the curved or looped fibres, of which the superficial branches are simply the unitive fibres already noticed.

“Notwithstanding the greatly varied directions of the muscular fibres of the heart, these directions may all be classed under three general heads:—

“1st. Perpendicular fibres, or very nearly perpendicular to the axis of the ventricles.

“2d. Parallel fibres, or very nearly parallel to this axis.

“3d. Fibres whose direction is neither perpendicular nor parallel to the axis of the heart, but intermediate to both.

“4th. Spiral fibres, which have a special action hereafter to be described.”

“The ventricles, as we observe, are in great part formed of complete muscular loops, which, proceeding from the muscular zones of the base of the heart, return to these, after having been, at first, superficial, and then deep-seated. The term superficial unitive fibres is applied to the first half of these loops, extending from the fibrous zones of the base to the apex of the heart; here they form a vortex, changing their name and direction; from descending, they become ascending; from superficial, profound; and proceed to form the fleshy columns of the internal parietes of the ventricles, and then return to their point of departure; that is to say, to the fibrous zones of the base of the heart. Whether their direction be sinuous or rectangular; whether they be in the form of the figure 8, or of simple loops; whether their deep-seated portion belongs to the interventricular partition, or to one or other of the parietes of the heart, it is incontestable that the same fibre forms invariably a loop, more or less open

or closed, of which the two ends are inserted in the fibrous zones of the base of the heart, and of which the free and convex portion corresponds with the apex. It is equally evident that this loop has its *point d'appui* at the insertion of its two extremities, and that its shortening can act only upon the convex or free portion of the loop. From this it follows that every contraction of one of these loops parallel to the axis of the heart can produce no other effect than to approach the apex towards the base. In this exposition, there is nothing new; but I must recall it to memory, although it has been repeated a thousand times, when the object is to prove that the heart becomes shortened during its systole. Let us take a very simple example: The cremaster muscle is formed of large muscular loops with their concavity above, of which the two ends are attached and take their *point d'appui* upon the spine of the pubis within, and upon the crural arch without. When the loops contract, the integuments to which they adhere are thrown into transverse wrinkles, and the testicle embraced within their concavity is drawn towards the abdominal ring. This example applies very well to the fibres proper to each ventricle, which are simple loops arranged the one above the other, or which represent, according to the expression of M. Gerdy, cornets inserted one within the others.

"The preceding exposition is applicable to the fibres of which the direction is parallel, or nearly so, to the axis of the heart; but dissection shows that many of the fibres are almost perpendicular to this axis. These contribute but little to draw the apex towards the base; but their action is to cause the parietes of the ventricular cavities to approach their axis.

"A kind of antagonism has been imagined to exist between the fibres parallel to the axis, or the longitudinal fibres of the heart, and the transverse fibres, or those perpendicular to that axis; hence the famous hypothesis, again and again overthrown, but as repeatedly resuscitated, that certain fibres of the heart contract during the diastole, while others contract during the systole. This question is now decided.

"There does not exist in the heart vertical rectilinear fibres, nor fibres that are exactly circular and horizontal in reference to the axis of the organ. The same fibre may in its course be in one part longitudinal, and in another transverse; an arrangement which is met with in all those regions of the body where the muscular fibres are considerably intricated, as, for example, in the lips, perineum, uterus, &c. In the heart, one set of fibres, at one point, by their action draw the apex of the organ towards its base, while at another they cause a contraction of the ventricular sac. Each loop, also, may effect two distinct movements of the heart. Take, for instance, a vertical loop; its branches have the same convexity as have the parietes of the heart. Now, every curved muscle in contracting has a tendency to become rectilinear; hence, at the same time that the apex of the heart approaches the base, the parietes of the organ are brought nearer to the axis. This explains the utility of the inward curvature of the base of the ventricles on a level with the auriculo-ventricular furrow, by its increasing the length and convexity of the fibres.

"Let us suppose a muscular loop nearly perpendicular to the axis of the heart; its two points of insertion will be in the fibrous zones at the base of the organ, and, consequently, more elevated than its middle portion; so that it will present a convexity towards the apex of the heart as well as towards its exterior surface. In contracting, this loop will have a tendency to become rectilinear, and consequently will produce a twofold effect—that of shortening the heart, and, at the same time, contracting its cavities.

"A word or two now in regard to the spiral fibres. More than one author has invoked their aid to explain the locomotion of the heart. How does a spiral fibre act in contracting? Let us suppose it to be fixed at only one of its extremities; its contraction will have a tendency to cause its free extremity to approach the point of insertion, while the cylinder or hollow cone that it forms tends to contract so as to cause the parietes to approach the axis. Finally, it impresses upon its movable extremity a centrifugal rotatory motion. The sternomastoideus muscle, which is but slightly spiral, nevertheless in contracting turns the entire head. Let us choose another example. Take a twisted and vertical cord, fixed at its extremity to a horizontal bar; wet the cord, and it will

contract; the bar, at the same time, will mount towards the *point d'appui* in describing the arc of a circle of more or less extent. It is easy to apply this in explanation of the spiral fibres of the heart. A muscular fibre is entwined around the ventricular cavity, having its fixed point at the base, and its free extremity at the apex of the heart; in contracting, it presses upon the movable parietes of the cavity it surrounds, and consequently tends to approximate them; it therefore contributes to the contraction of the ventricle, while, at the same time, by drawing the apex towards the base of the heart, it tends to shorten the organ, and, finally, it communicates to it a rotatory motion, by causing the whole of the ventricular mass to turn upon its axis."

Dr. Verneuil, after presenting some diagrams tending to illustrate the simple and conjoint action of the muscular fibres of the heart, remarks:—

"Without any geometrical demonstration, it is easy to comprehend that when two muscular fibres, similar in their action and power, but of unequal length, act simultaneously, the absolute contraction of the one having the greatest length will exceed that of the shorter fibre; and, consequently, if these two fibres are inserted at an angle into a movable point, the longest of the fibres will draw that point towards the side on which it is inserted. If, then, we find, in the heart of man and the inferior animals, that the muscular fibres are longer upon one of its faces than upon the other, its apex will be necessarily drawn on that side during the ventricular systole. Such, in effect, is the case, and hence nothing is more clear than the theory of the systolar locomotion of the heart."

M. Verneuil proceeds next to show the inequality of the muscular fibres of the heart at different points.

"1st. The longest fibres are the superficial unitive fibres of the anterior face of the organ. They are almost parallel to the axis of the ventricles; their fixed point of insertion is at the anterior part of the right auriculo-ventricular orifice, and in passing over the infundibulum describe a very considerable curve, which augments much their length. They surround the infundibulum and the right anterior portion of the base of the heart; from thence they pass to the anterior-ventricular parietes, over, for the most part, the anterior-interventricular depression, covering the anterior surface of the left ventricle, and arriving at the apex of the heart they become reflected, and penetrate almost completely in the opening which is left below by the proper fibres of the left ventricle, and finally, after being, towards the apex of the heart, twisted into the form of the figure 8, they become deep-seated, and constitute the profound fibres of the aortic ventricle, returning from thence to the aortic or left auriculo-ventricular fibrous zones. These form, therefore, a complete, almost vertical loop, of which the superficial branch, which belongs especially to the right ventricle, is incontestably much longer than the deep-seated branch. Besides, these superficial unitive fibres represent the fibres in the form of the italic *S*, or spiral, directed from the right to the left, and from above downwards, participating in the character both of the fibres parallel to the axis and the spiral fibres. They have a mixed action, as already indicated.

"2d. At the posterior face of the heart, the superficial unitive fibres are much less marked. They are inserted at the posterior demi-circumference of the left auriculo-ventricular orifice, and descend towards the apex. A number of these fibres do not quit the left ventricle, and becoming reflected near the apex of the heart, pass to the anterior parietes of the same ventricle, forming, consequently, simple postero-anterior loops, of which the anterior branch is the longest.

"Another part of these unitive fibres pass over the posterior interventricular depression, arrive at the apex of the right ventricle, become there curved, and penetrate into its depths, forming the fleshy columns of this ventricle. These posterior unitive fibres are much less numerous than those of the anterior surface. They affect, also, the spiral form, but in a degree much less decided."

On removing these unitive fibres, we find fibres, of which the direction is almost circular in the upper two-thirds of the ventricular mass. These fibres arise from the pulmonary and aortic orifices, the right and left auriculo-ventricular orifices. Those of the anterior face of the heart are very much curved,

and consequently have considerable length; their direction is from left to right, almost perpendicular to the axis of the right ventricle, the convexity of which they embrace as circular fibres; then, passing over the right border of the heart, they arrive at its posterior face, pass the posterior depression, until they reach the left ventricle, when they incline towards the apex of the heart, and, assuming a spiral form, they are reflected to form the profound ascending fibres of the parietes of the left ventricle, and of the interventricular partition.

"The fibres which arise especially from the orifices of the left chamber of the heart remain in great part confined to the left ventricle; some, however, pass onwards to form the profound fibres of the right ventricle.

"Finally, the ventricles have each their proper fibres: these are disposed—1st, in vertical loops, with the concavity presenting upwards, of which one of the limbs is exterior and descending, the other interior and ascending; they form arcades, or a species of rings lengthwise with the internal surface of the ventricles: 2dly, in loops almost circular, which serve as sphincters to the auriculo-ventricular, pulmonary, and aortic orifices."

The functions of the several sets of muscular fibres entering into the structure of the heart are thus explained by M. Verneuil:—

"1st. The base of the heart being supposed to be immovable, or nearly so, the shortening of the ventricular mass is due to the action of the superficial unitive fibres of the anterior and posterior faces; to the action of the profound fibres which form the vertical fleshy columns, and the interventricular partition, and to the action of the muscular loops proper to each ventricle; in a word, to all the fibres, muscular loops, and fleshy columns which are more or less parallel to the axis of the ventricles.

"2d. The deviation of the apex of the heart from the anterior face: the flattening of this face of the heart is produced by the action of these same fibres, which are longer upon the anterior than they are upon the posterior parietes.

"3d. This deviation of the apex anteriorly is, therefore, as Hope, Parchappe, and Bérard had suspected, inherent in the anterior parietes of the heart. A case of ectopia, which was observed by M. Follin, has given to this opinion absolute confirmation.

"4th. The spiroïd movement of the heart is due to the spiral fibres. The tendency to this movement is in two opposite directions; the deep-seated spiral fibres of the left ventricle tend to produce a movement from right to left; and the superficial spiral fibres from left to right; the latter, being the most numerous, counteract the tendency of the former, and, consequently, the heart moves spirally in the direction impressed upon it by them.

"5th. The movement of the heart in the arc of a circle, from left to right, and from above downwards, is intimately connected with the spiral movement; it is due more especially to the action of the anterior superficial unitive fibres, of which the length is so considerable. These fibres act by their middle portion as the vertical fibres, by their inferior portion as the spiral fibres, and by their superior portion as the circular fibres: they thus contribute to produce the depression of the base of the right ventricle.

"6th. As all these longitudinal fibres are, also, more or less spiral or curved, with the concavity of the curves directed towards the axis of the ventricles, they in contracting tend to assume a straight direction, and, consequently, contribute to the contraction of the ventricular cavities.

"7th. The contraction of the transverse diameter of the ventricular cavities is especially due to the transverse or circular fibres; but as these fibres always incline from the base towards the apex of the heart, they concur also in producing the shortening of the heart and in its spiroïd movement.

"8th. All the fibres are synergic, all contract simultaneously, and concur each, to a certain extent, to the accomplishment of the appreciable acts of the systole; shortening of the heart, contraction of its cavities, deviation of the apex upwards and from the right side forwards; a spiroïd movement, or in the arc of a circle from left to right; and, finally, depression of the base of the heart."

D. F. C.

ART. XVIII.—*Principles of Human Physiology, with their Chief Applications to Psychology, Pathology, Therapeutics, Hygiene, and Forensic Medicine.* By W. B. CARPENTER, M. D., F. R. S., F. G. S., Examiner in Physiology and Comparative Anatomy in the University of London, &c. &c. Fifth American from the Fourth and enlarged London Edition. With three hundred and fourteen Illustrations. Edited, with additions, by FRANCIS GURNEY SMITH, M. D., Prof. of the Institutes of Medicine in the Medical Department of Pennsylvania College, &c. Philadelphia: Blanchard & Lea, 1853: 8vo. pp. 1091.

THIS volume reached us at so late a period, that we have been unable to prepare a full notice of it for our present number, and must, therefore, postpone to a future occasion an examination of its particular merits. We may now state, however, that the present edition has been entirely remodelled, so that in reality it may be considered as a new work.

The principle which the author has adopted throughout "has been that of making the Treatise express his present convictions and opinions, as completely as if it had now been for the first time put forth; the old materials having been incorporated with the new, rather than the new with the old; and having only been employed, where they could be readily made subservient to this purpose. In making his selection from the vast mass of results which have been recently accumulated by the diligent labours of physiologists of various countries, the author has been guided by the principle which he expressed in the preface to his previous edition;—that, namely, of not rashly introducing changes inconsistent with usually received views;—nor, on the other hand, showing an unwillingness to reject the statements of those who have taken adequate pains to arrive at accurate conclusions. 'He trusts that he may be found'—*now as then*—'to have exercised a sound discretion, both as to what he has admitted, and what he has rejected; and that his work will appear to exhibit, on the whole, a faithful reflection of the present aspect of Physiological Science.'"

To untiring industry in making himself acquainted with the experiments and observations of other physiologists and a sound appreciation of the facts of the science, Dr. Carpenter has the faculty of clearly and perspicuously presenting his own conclusions, which have made the previous editions of this work highly popular, and will secure for the present one the character of being the most complete work on the science in our language.

ART. XIX.—*The Principles and Practice of Dental Surgery.* By CHAPIN A. HARRIS, M. D., D. D. S., Professor of the Principles and Practice of Dental Surgery in the Baltimore College. Fifth edition, with two hundred and thirty-six Illustrations. Philadelphia: Lindsay and Blakiston, 1853: pp. 812.

THIS work has run rapidly to its fifth edition, indicating its popularity with the profession, and proving, at the same time, the improvement and upward tendency of dentistry in the country. The book contains ample evidence of faithful and able authorship. From the table of contents we select the general titles, for the purpose of showing the scientific method and comprehensiveness of the work. They are such as these: Anatomy and physiology of the mouth; dentition, first and second; irregularity of the teeth, its treatment; deformity and partial luxation of the jaw.

Peculiarities in the formation and growth of the teeth; osseous union of the teeth; third dentition. These topics are briefly but successfully treated, and well illustrated.

Physical characteristics of the human teeth and gums; the salivary calculus; the lips and tongue, and the fluids of the mouth; diseases of the teeth, and

their treatment; dislocation of the lower jaw; diseases of the gums and alveolar processes, and their treatment; diseases of the maxillary sinus, and their treatment; mechanical dentistry; diseases and defects of the palatine organs. The improvements in this edition are three new chapters on mechanical dentistry, thirty-five additional engravings, and a general revision of every chapter.

The author has availed himself of the best authorities in the anatomical department, and has carefully brought up the body of the work to the present state of improvement and discovery in practical dentistry. Indeed, for fullness, variety, usefulness, and effective array, the author may justly claim the highest praise from the students and practitioners of the profession. In respect to the details in the department of mechanical dentistry, we do not assume to speak with authority; but we are assured by gentlemen in the profession that it is ably executed. Of those parts of the work which are common ground for all the divisions of the healing art we may speak more confidently, and we do most cordially testify our approbation of the work.

We have very frequent occasion to notice the zeal, ability, and success which the cultivators of dental science are manifesting in the improvement of their profession. Dr. Harris's last publication is a new and gratifying instance of this general advancement. The whole profession seems to be animated with the laudable ambition of excellence. Their colleges are rapidly increasing in number, and as rapidly rising in rank and value, and general surgery and medicine will soon have reason to be proud of the achievements of their younger sister, who is pushing her claims, on the solid ground of worthiness, with such energetic earnestness. Dentistry, as yet, has been only borrowing the discoveries of the older branches and appropriating them to its use; but it bids fair now to repay its indebtedness to the common stock. Our best surgeons find great advantage in consulting dentists in the treatment of diseases which fall within their specialty, and their publications are every day growing richer in materials and hints capable of improving our text-books in surgical and medical practice. In this judgment of the works on Dentistry which are now issuing from the press, we are fully sustained by our fellow-journalists. We recommend our readers to give them a place in their libraries, and due consideration in their professional studies.

E. T.

ART. XX.—*Quarterly Journal of Microscopical Science, including the Transactions of the Microscopical Society of London.* Edited by EDWIN LANKOSTER, M. D., F. R. S., F. L. S.; and GEORGE BUSK, F. R. C. S. E., F. R. S., F. L. S. No. I., October, 1852; with four lithographic Illustrations.

We hail with pleasure the appearance of this new Journal, which promises to furnish important contributions from a field of science in which a rich harvest is to be gathered by the industrious cultivator. Each number will contain, first, the Transactions of the Microscopical Society, and which will be paged separately; and, secondly, the Journal. This last will contain, first, original contributions on subjects requiring elucidation by the microscope; and upon those relating to the structure of the instrument itself. Second, translations and abstracts of papers in foreign journals, with illustrations. Third, critical notices of books of interest to the microscopist. Fourth, microscopical notices, and memoranda, and correspondence. Fifth, proceedings of local microscopical societies.

The first number contains many valuable papers, and in our Summary we shall notice such as more particularly interest us as medical practitioners.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Defence of the Doctrine of Vital Affinity, against the Objections stated to it by Humboldt and Dr. Daubeny.* By Dr. ALISON.—The object of this paper was to fix attention on the great physiological discovery which has been gradually effected during the present century, of the mode in which certain of the elements contained in the earth's atmosphere, under the influence of light and of a certain temperature, are continually employed in maintaining that great vital circulation, of which vegetable structures, animal structures, the air, and the soil, are the successive links; and to point out that the most essential and fundamental of the changes here effected—particularly the formation of the different organic compounds in the cells of vegetables—are strictly *chemical changes*, at least as clearly distinct from any chemical actions yet known to take place in inorganic matters, as the vital contractions of muscles are distinct from any merely mechanical causes of motion; and justifying the statement of Dr. Daubeny, that there appears to be “a power, residing in living matters,” and producing chemical effects—in fact, manifesting itself most unequivocally by the chemical changes which result from it—“distinct, at least in its effects, from ordinary chemical and physical forces.”

But, after having made this statement, Dr. Daubeny, according to the author of this paper, has thrown a degree of mystery over the subject which is quite unnecessary and even unphilosophical, by refusing to admit—and quoting Humboldt, who has changed his opinion on the subject, and now likewise declines to admit—that these changes are to be regarded as *vital*; both authors (as well as several other recent English authors) maintaining that, as we do not know all the conditions under which ordinary chemical affinities act in living bodies, we are not entitled to assert that these affinities may not yet be found adequate to the production of all the chemical changes which living bodies present; and that, until this *negative proposition* is proved, it is unphilosophical and delusive to suppose the existence of any such power as that to which the term *Vital Affinity* has been applied, by the author of this paper, and several other physiologists.

In answer to this, it is here stated, that as we cannot, strictly speaking, *define* Life, or Vitality, we follow the strict rules of philosophy, in *describing* what we call living bodies, whether vegetable or animal, and then applying the term *Vital*, or *living*, as the general expression for everything which is observed to take place only in them, and which is inexplicable by the physical laws, deduced from the observation of the other phenomena of nature; that, according to this, the only definition of which the term *vital* admits, or by which the objects of Physiology can be defined, Dr. Daubeny has already admitted, in the expressions above quoted from him, that chemical as well as mechanical changes in living bodies, fall under the denomination *vital*; and as the rule of sound

logic is "*affirmantibus incumbit probatio*," and, as it is just as probable *a priori*, that, with a view to the great objects of the introduction of living beings upon earth, the laws of chemistry, as those of mechanics, should be modified or suspended by Almighty Power, this author maintains that we are as fully justified in referring all great essential chemical phenomena, which are peculiar to living bodies, to peculiar affinities, which we term vital, as Haller was to ascribe the peculiar mechanical movements of living bodies, to the vital property of Irritability; and to throw on the mechanical physiologists of his day the burden of proving, if they could, that the laws of motion, perceived in dead matter, were adequate to explain them.

In illustration of the importance, both in Physiology and Pathology, of this principle being held to be established, Dr. Alison adduced two examples, *first*, the utter failure of the very ingenious theory of Dr. Murray to explain, on ordinary chemical principles, the simplest and most essential phenomena of healthy Secretion; and, *secondly*, the now generally admitted inadequacy of any theory of Inflammation, which does not regard a modification of the *affinities* peculiar to life, and here termed vital, as the primary and essential change, in the matter concerned in that process.—*Proceedings of the Royal Society of Edinburgh, Session 1851-52.*

2. *Contributions to the Physiology of Vision.*—On some remarkable and hitherto unobserved phenomena of *Binocular Vision*. By CHARLES WHEATSTONE, F. R. S.—This paper is a continuation of the memoir presented by Professor Wheatstone to the Royal Society in 1838, and published in the "Philosophical Transactions" for that year; in which he first announced his very remarkable discovery, that the notion of *solidity* or *relief* which we derive from the direction of the visual sense to solid bodies, is essentially dependent upon the reception and combination *by the mind* of two *dissimilar* perspective views projected upon the two retinæ respectively. The demonstration of this fact, not only most important in itself, but most essential to the due interpretation of a vast number of other visual phenomena, was afforded by the *Stereoscope* devised by Professor Wheatstone, the action of which was, to form upon the two retinæ the two dissimilar pictures, not from the object itself, but from two perspective projections of such an object; the mental combination of these two pictures, and the consequent reproduction of the object to the *mind's eye*, being then found to be as complete as if the object itself had been placed before the vision. Thus two perspective projections of a cube, of a truncated pyramid, or of any other geometrical solid, drawn even in simple outline, when so cast upon the two retinæ as to possess the forms and positions which they would have had if at once derived from the actual object, convey to the mind the most complete conception of that object; and the illusion is still more complete, when the views are not mere outlines, but give the correct lights and shadows of the body from which they are taken. The most perfect illusion is derived from the employment of two *photographic* pictures, taken at the same time, by two cameras, placed so as to form about the same angle with the object as that which the axes of the two eyes would form by their convergence on it; a portrait or statue being thus reproduced to the mind's eye with the completest perception of its solidity. This application was made by Professor Wheatstone soon after the publication of the photographic processes of Fox Talbot and Daguerre, and was announced by him in 1841. A form of stereoscope, partly contrived by Sir David Brewster, has recently come into general use, which has the advantage of portability over the original mirror-stereoscope; but it is limited to the exhibition of a much smaller variety of phenomena than that to which Professor Wheatstone's instrument can be adapted.

We have given this *résumé* of the fundamental idea of Professor Wheatstone's former memoir, and a notice of what he has subsequently done in the matter, because some very extraordinary attempts have been recently made to mystify the public as to the real inventor of the stereoscope, and the demonstrator of the true doctrine of Binocular Vision; claims having been advanced by Sir David Brewster on both these points, for which there is not the shadow of a foundation. We believe ourselves to be fully acquainted with the whole his-

tory, so far, at least, as it can be made out by published statements; and we have not the slightest hesitation in making the assertion, that the entire merit of the *idea* of the original dependence of our visual perception of solidity upon the mental combination of the two dissimilar impressions made upon the two retinæ—and further, that the whole merit of the realization of that idea, by means of the mirror-stereoscope, long before Sir David Brewster's attention had been given to the subject at all—belongs to Professor Wheatstone.

The Second Part of Professor Wheatstone's experimental researches, communicated to the Royal Society as the Bakerian Lecture for the present year, commences with an account of some remarkable illusions which occur when the usual relations which subsist between the magnitude of the pictures on the retinæ and the degree of inclination of the optic axes are disturbed. Under the ordinary circumstances of vision, when an object changes its distance from the observer, the magnitude of the pictures on the retinæ increases at the same time that the inclination of the optic axes becomes greater, and *vice versâ*, and the perceived magnitude of the object remains the same. The author wished to ascertain what would take place by causing the optic axes to assume every degree of convergence, while the magnitude of the pictures on the retinæ remained the same; and, on the other hand, the phenomena which would be exhibited by maintaining the inclination of the optic axes constant, while the magnitude of the pictures on the retinæ continually changed. To effect these purposes, he constructed a modification of his reflecting stereoscope. In this instrument two similar pictures are placed, on movable arms, each opposite its respective mirror; these arms move round a common centre in such manner, that, however they are placed, the reflected image of each picture in the mirrors remains constantly at the same distance from the eye by which it is viewed; the pictures are also capable of sliding along these arms, so that they may be simultaneously brought nearer to, or removed further from, the mirrors. When the pictures remain at the same distance, and the arms are moved round their centre, the reflected images, while their distances from the eyes remain unchanged, are displaced, so that a different inclination of the optic axes is required to cause them to coincide. When the arms remain in the same positions, and the pictures are brought simultaneously nearer the mirrors, the reflected images are not displaced, and they always coincide with the same convergence of the optic axes; but the magnitude of the pictures on the retinæ becomes greater as the pictures approach. The experimental results afforded by this apparatus, so far as regards the perception of magnitude, are the following: the pictures being placed at such distances, and the arms moved to such positions, that the binocular image appears of its natural magnitude and its proper distance, on the arms being moved so as to occasion the optic axes to converge less, the image appears larger; and on their being moved so as to cause the optic axes to converge more, the image appears less; thus, while the magnitude of the pictures on the retinæ remains constantly the same, the perceived magnitude of the object varies, through a very considerable range, with every degree of the convergence of the optic axes. The pictures and arms being again placed, so that the magnitude and distance of the object appear the same as usual, and the arms being fixed, so that the convergence of the optic axes does not change; while the pictures are brought nearer the mirrors, the perceived magnitude of the object increases, and it decreases when they are removed farther off; thus, while the inclination of the optic axes remains constant, the perceived magnitude of the object varies with every change in the magnitude of the pictures on the retinæ. After this, the author takes into consideration the disturbances produced in our perception of distance under the same circumstances, and concludes that the facts thus experimentally ascertained regarding the perceptions of magnitude and distance, render necessary some modification in the prevalent theory regarding them.

The author next reverts to the relations of these facts to the effect produced by the stereoscope. The two projections of an object, seen by the two eyes, are different, according to the distance at which it is viewed; they become less dissimilar as that distance is greater; and, consequently, as the convergence of the optic axis becomes less. To a particular distance belongs a specific dis-

similarity between the two pictures, and it is a point of interest to determine what would take place on viewing a pair of stereoscopic pictures with a different inclination of the optic axes than that for which they were intended. The result of this inquiry is, that if a pair of very dissimilar pictures is seen when the optic axes are nearly parallel, the distances between the near and remote points of the object appear exaggerated; and if, on the other hand, a pair of pictures slightly dissimilar is seen when the optic axes converge very much, the appearance is that of a bas-relief. As no disagreeable or obviously incongruous effect is produced when two pictures, intended for a nearer convergence of the optic axes, are seen when the eyes are parallel or nearly so, we are able to avail ourselves of the means of augmenting the perceived magnitude of the binocular image mentioned at the commencement of this abstract. For this purpose the pictures, placed near the eyes, are caused to coincide when the optic axes are nearly parallel; and the diverging rays proceeding from the near pictures are rendered parallel by lenses of short focal distance placed before the mirrors or prisms of the stereoscope.

Some additional observations are next brought forward respecting those stereoscopic phenomena which the author, in his first memoir, called "conversions of relief." They may be produced in three different ways: 1st, by transposing the pictures from one eye to the other; 2dly, by reflecting each picture separately, without transposition; and, 3dly, by inverting the pictures to each eye separately. The converse figure differs from the normal figure in this circumstance, that those points which appear most distant in the latter are the nearest in the former, and *vice versa*.

An account is then given of the construction and effects of an instrument for producing the conversion of the relief of any solid object to which it is directed. As this instrument conveys to the mind false perceptions of all external objects, the author calls it a *Pseudoscope*. It consists of two reflecting prisms, placed in a frame, with adjustments, so that, when applied to the eyes, each eye may separately see the reflected image of the projection which usually falls on that eye. This is not the case when the reflection of an object is seen in a mirror; for then, not only are the projections separately reflected, but they are also transposed from one eye to the other, and therefore the conversion of relief does not take place. The pseudoscope being directed to an object, and adjusted so that the object shall appear of its proper size, and at its usual distance, the distances of all other objects are inverted; all nearer objects appear more distant, and all more distant objects nearer. The conversion of relief of an object consists in the transposition of the distances of the points which compose it. With the pseudoscope we have a glance, as it were, into another visible world, in which external objects and our internal perceptions have no longer their habitual relations with each other. Among the remarkable illusions it occasions, the following are mentioned: The inside of a teacup appears a solid convex body. The effect is more striking if there are painted figures within the cup. A china vase, ornamented with coloured flowers in relief, appears to be a vertical section of the interior of the vase, with painted hollow impressions of the flowers. A small terrestrial globe appears a concave hemisphere. When the globe is turned on its axis, the appearance and disappearance of different portions of the map on its concave surface has a very singular effect. But the most singular effect, to our eyes at least, is produced by looking at the interior of the base of the skull, which is brought out in relief, like the actual base of the brain which lies in it. A great number of other curious phenomena are brought into notice by this instrument; and the whole subject is one of such extreme interest, both to the physiologist and the psychologist, that we rejoice to find that Professor Wheatstone is likely to pursue it with all the zeal and ability for which he has long been so conspicuous.—*Brit. and For. Med. Chirurg. Rev.* Oct. 1852, from the *Proceedings of the Royal Society*, Jan. 8, 1852.

3. *Respiration of Muscles*.—G. LIEBIG has been engaged in a series of experiments in relation to the above subject (*Mill. Arch.* 1850, p. 393. *Ervortep's Journ.* 357, 1851), and has obtained the following results: 1. Muscles re-

tain in oxygen their contractility much longer (often ten to fifteen hours) than in atmospheric air; but, 2. Not so long in hydrogen or nitrogen as in the air. 3. In carbonic acid they lost their contractility in three to five hours, and became after five to eight hours white, broke easily in the fingers, the fibres having become dry, while the transparency of the muscle was entirely lost. 4. During the continuance of contractility carbonic acid was produced. 5. The leg of a frog produced, within seventeen hours when in oxygen, 2.44 centim. = 0.0048 gr. carbonic acid; but in atmospheric air 2.06 = 0.0040 gr. carbonic acid. 6. A muscle, while its contractile powers are retained, absorbs oxygen from the atmosphere, and gives off carbonic acid. 7. Should water be forced into the arch of the aorta until the body is entirely free from blood, these muscles, deprived of blood, lost their contractility at the same time in oxygen as in atmospheric air; however, not sooner than muscles in atmospheric air containing blood. 8. Muscles deprived of blood pass into decomposition sooner than those which retain it, particularly when they are suspended in oxygen. 9. Carbonic acid is given off and oxygen absorbed by muscles deprived of their blood, and they retain life longer in oxygen or atmospheric air than in nitrogen.

C. W.

4. *Hermaphrodite Formation*.—SAMUEL STUART, Esq., gives the following description (*Dublin Medical Press*, Nov. 17, 1852) of a remarkable hermaphrodite formation in a new-born infant:—

"It is furnished with a double scrotum, which occupy, respectively, the situation of the labia majora in the female; each scrotum contains one testis. On the inner side of the right scrotum, in close connection with it, and pointing towards the left side, is a small-sized penis, about a quarter of an inch in length, or, more properly speaking, a glans only, with a prepuce, which is mostly retracted; by this rudimentary penis the urine passes freely. In the space between the scrota are two openings of a circular form, capable of admitting a probe or small quill, and separated by a thin membranous septum. These openings occupy the situation of the urethra and vagina in the female, and seem to represent those organs; indeed, the upper one is a *real urethra*, the urine passing regularly through it, also in a full stream, though *not at the same time* that it passes by the penis; thus showing, I believe, that there are two bladders. Whether the lower opening, which seems to represent the vagina, may lead to a uterus, I cannot say, though the presumption is that it does. At the point of junction of the scrota inferiorly, at the anterior margin of the perineum, a fleshy vascular tumour projects, about an inch and a half long, of an irregular pyriform shape. It has, about a week since, begun to discharge a dark, glairy fluid, which has reduced it in size, and it seems likely soon to disappear altogether. The child is healthy and thriving, and likely to live, as any child of its age."

5. *Muscularity of the Valve which closes the Foramen Ovale*.—Dr. PEACOCK exhibited to the Pathological Society of London (19th Oct.) a series of preparations intended to illustrate the valve which closes the foramen ovale—a peculiarity of structure which, he thought, powerfully contributed to the permanent adhesion of this membrane, and the consequent completion of the auricular septum. The muscular character of this valve was first pointed out by Senac; it was, however, expressly denied by Haller, who remarked that the tissue composing it was purely fibro-cellular, and that the presence of muscular fibres was accidental and unusual. The examinations he (Dr. Peacock) had made, enabled him to refute the assertion of Haller and establish the truth of Senac's doctrine. Heretofore, the explanation afforded of the closure of the foramen ovale was purely mechanical. After birth, it is said, the pressure of the blood in each auricle becomes equal, and, no excess of force existing on either side of the foramen ovale, the valve is kept in contact with the edges of that aperture, to which, in process of time, it becomes solidly united. This explanation had always struck him as unsatisfactory, and, believing that muscular action was called into force for the purpose of bringing the valve in contact with the margins of the foramen ovale, he made a series of dissections, which established

the truth of this opinion. Without muscular fibre, indeed, it would be difficult to explain the closure of the orifice; for, after birth, the pressure of the blood in both auricles is not so certainly equalized, for there are instances in which the walls of the left auricle are scarcely stronger than those of the right, while the cavity of the right auricle remains larger, and hence superiority of force on the right side of the valve exists, which, but for some counteracting agent, would drive the flapping membrane into the cavity of the left auricle, and prevent the completion of the septum. Indeed, there were instances in which, the muscular fibres of the valve being few and weak, the condition adverted to prevented the establishment of a perfect auricular septum, and the valve, instead of cohering properly to the margins of the foramen ovale, yielded under the pressure, and became converted into a saccular dilatation, which, as one of the specimens on the table demonstrated, projects in the form of a bag into the left auricle. Occasionally, the cellular tissue between the muscular fibres of the valve, yielded, being ruptured either by the pressure of the blood or by the action of the muscular structure, and this occurrence resulted in the formation of a cribriform septum, of which there was also a specimen on the table. This condition of the valve was generally coexistent with contraction of the orifice of the pulmonary artery. The muscularity of the valve was not apparent till after birth, and, as Senac has noticed, the muscular fibres were most marked on its left surface. In the hearts of fishes, and of reptiles, such as the turtle, the valve manifested a muscular structure more plainly than in the human subject.

In answer to an inquiry at what age he supposed perfect closure of the foramen ovale took place? Dr. Peacock stated that he was unable to answer that question; but he felt sure that if the foramen was not closed early in life it was never closed at all, and he believed the cases were very numerous in which it remained patulous. Preparations, demonstrating the different conditions of the adherent valve and its muscularity, were handed round.—*Med. Times and Gaz.* Oct. 30, 1852.

6. *On the Structure and Development of Bone.* By JOHN TOMES, F. R. S., and CAMPBELL DE MORGAN, Esq. (Read to the Royal Society.)

1. *Haversian and other Canals of Bone.*—Besides the Haversian canals, the authors have pointed out that there are found in bone-sections spaces of an entirely different character, irregular in shape, and with an irregular festooned margin. Their margins correspond in outline with those of one or more Haversian systems, and precede in many instances the formation of those systems. These spaces, produced by absorption, are called by the authors Haversian spaces. Unlike the Haversian canals, which are surrounded by their own laminae, these spaces are bounded by parts of several systems which have been encroached on by the process of absorption. In examining various sections, or different parts of the same section, many of these spaces will be found partially or entirely occupied by Haversian systems. They are found in the bone of subjects of all ages.

2. *Laminae of Bone.*—Lamination is shown to be a constant character of mammalian bone; each lamina, when highly developed, is found to consist of a dark granular, and of a transparent part. The external margin of the outermost lamina of each Haversian system is irregularly indented, and corresponds with the boundary of a pre-existing Haversian space; while its internal margin and all the succeeding laminae are regular in outline. The laminae are found, as a general rule, to surround their canal, which is usually placed in the centre of them; but sometimes the canals are eccentric; in which case, either the laminae on one side, though still surrounding the canal, are broader, or there are more developed on one side than on the other. The lamina next to the perfected Haversian canal, however, is always complete, and is often composed of a transparent structureless tissue, like that which encircles the Haversian canals of the stag's antler at the time of shedding. The presence of interstitial laminae is readily accounted for; they are, in fact, the remains of pre-existing Haversian systems, or circumferential laminae, parts of which have been removed by absorption. The circumferential laminae are not so constantly pre-

sent as is generally described, and seldom entirely surround the shaft of a long bone. When present, they seem to indicate that the bone is nearly stationary in its growth. They are frequently intersected by numerous Haversian spaces and systems, so as at length to assume the characters of interstitial laminæ.

3. *Lacunæ*.—In young bone, the lacunæ are more abundant, larger, and have more numerous canaliculi; in older bone, they may exist without canaliculi, or the canaliculi and great part of the lacunæ themselves may be filled up with solid matter, so as to leave only a small space in the centre of the latter. The lacunæ and canaliculi are shown to have distinct walls. In the circumferential laminæ are frequently found elongated tubes which the authors regard as modifications of lacunæ; they run obliquely across the laminæ, generally in bundles. They frequently form communications with the canaliculi. In transverse section they are seen to have proper walls.

4. *Haversian Systems*.—The authors have pointed out that the anastomosis of the canaliculi of adjoining systems is rare in newly-developed systems, but is very common in those of greater age. It not unfrequently happens, that two or more Haversian systems are contained within a common series of surrounding laminæ. Sometimes the Haversian systems are rendered solid by the narrowing of the Haversian canal and ultimate development of a mere lacuna in the centre of the system. The more recently developed Haversian systems which occupy the Haversian spaces before noticed, are seen to be darker in colour than the older ones, from the greater abundance of canaliculi, and the more general granularity of the tissue.

5. *Ossified Articular Cartilage*.—This structure the authors have found in all the joints which they have examined in the lower jaw, amongst others, where Kölliker failed to detect it. Towards the bone the tissue becomes in general granular, and of a brownish colour, and usually there is a distinct line of demarcation between the bone and the ossified cartilage; but sometimes they graduate insensibly the one into the other. Towards the articular surface the margin is even and regular; but towards the bone it is deeply indented, from the bone advancing into it by rounded projections. Hence the articular cartilage varies in thickness. The authors believe that this tissue, so far from being a result of imperfect development, is in reality an evidence of design, and intended to give a uniform and unyielding surface for the cartilage to rest upon.

6. *Ossified Cells*.—It is frequently observed, that the bones of aged people become light and spongy, and, after maceration, contain a white powder in the cancellated structure. This powder the authors have found to be composed mainly of ossified nucleated cells, either detached or held together in masses. They are spherical, and contain a dark granular nucleus, which is surrounded by a thick transparent wall. If portions of the cancelli be examined, they will be found to have similar cells adherent to their surfaces, or to those of the Haversian canals, with here and there canaliculi of adjoining lacunæ shooting into them, while the nuclei have themselves assumed the form of lacunæ. Similar cells may be found imbedded in parts of most sections of bone. In order to see this condition clearly, it is desirable that the sections and the loose cells should be mounted in Canada balsam.

7. *Bone Tissue*.—The views generally entertained with regard to the ultimate structure of bone tissue are, the older one, that it consists of an aggregation of granules in a transparent matrix; and that which has been more recently put forward by Dr. Sharpey, that in many cases it is composed of ossified decussating fibres. The authors have satisfied themselves that the ultimate structure of bone tissue is composed of minute granules or granular bodies imbedded in a clear or sub-granular matrix; and that the appearance of fibres is due in many cases to the mode of illumination. By transmitted light passing through them in the long axis of the microscope, the preparations show a granular or a structureless appearance, or alternations of a granular and structureless part. But under an oblique light passing from one side only an appearance of minute flat fibres presents itself. This takes place even in the isolated cells of old bone, or in developing young bone. The appearance is most marked over the lacunæ and canaliculi. But if a part which thus appears fibrous be viewed

under a light passing obliquely from all sides, as is effected by a Gillett's achromatic condenser, the fibres disappear, and we see only a granular appearance, with some tendency to arrangement in the granules. The fibrous appearance is in fact due to the shadows cast from the less transparent parts when the light passes obliquely, just as, in the navicula, the dots are replaced by lines. In thin sections, torn from bone which has been macerated in acid, a reticulated appearance, similar to that figured by Dr. Sharpey, may be seen, only, however, when the object is slightly out of focus, or the light oblique and from one side. By careful adjustment of the object-glass, and of the illuminating apparatus, this appearance may be shown to depend upon the presence of the canaliculi.

Development and Growth of Bone.—The early condition of cartilage, and the changes which take place in it and in the cartilage cell before ossification, are particularly described; and also the mode by which they multiply and arrange themselves by segmentation, so that a long column or cluster of cells represents an original cell, the walls of which have coalesced with the surrounding hyaline tissue. The cells, at the same time, enlarge individually as they approach the point where ossification is going on, encroaching on the hyaline substance so as in many cases to leave only a fine line of intercolumnar tissue, or even to cause it to disappear altogether. The nucleus, at the same time, enlarges considerably, while the cell-wall becomes thickened internally, until, in the end, it reaches the nucleus, which then becomes imbedded in firm tissue. Other changes now take place; either several cells are thrown into one cavity by the absorption of their contiguous walls, leaving the nuclei free in the common cavity, or the nucleus continues to occupy its parent-cell, and sends off small processes, which extend outwards to the cell-wall. At this stage the nucleus may be sometimes detached with the processes entire, but generally it is adherent, and may be seen to have become a lacuna with a central cavity and canaliculi; in addition to which, a nucleus may be seen to occupy its interior; it has, in fact, become a nucleated-cell, designated by the authors "granular cell." The entire cell may now be detached from the intercolumnar tissue in which it lies. The granular condition of the intercolumnar tissue, and of the cell itself, often renders the observation of this stage very difficult; but in rickety bone it is very readily shown, as in this disease there is a tendency for the cells to assume their permanent form before the deposit of bone-earth in any considerable quantity. To cells thus composed of an outer thickened cell-wall, and an inner granular-cell (the cartilage nucleus of authors), which contains within it a nucleus (the nucleolus of writers), which stands in the relation of a nucleus to the future lacuna, the authors have given the name of "lacunal-cells," while the term "granular-cell" has been applied to that which is usually designated the nucleus. In transverse sections of bone immediately below the line of ossification, the lacunal cells may be seen presenting different characters under different circumstances. Where two cells come into contact, the processes or canaliculi may be seen extending from one to the other; but where the cell is surrounded by intercolumnar tissue, the processes are short, and do not extend beyond the walls of their own cell; or, if cells join at one point, while the remainder is invested with intercolumnar tissue, the canaliculi will anastomose at the point of junction; while elsewhere they are few, short, and do not extend beyond the cell. In the further process of development, the cells and intercolumnar tissue become fused together, so as no longer to be recognized as distinct parts; and the granular cell appears as a perfect lacuna with a large cavity and numerous large canaliculi. To bone in this condition the term "primary bone" has been applied. It speedily, however, undergoes a change, preparatory to the formation of the more permanent secondary bone. Here and there in the line of ossification portions are removed by absorption, the spaces left being filled with small somewhat granular cells, lying in a transparent blastema, through the agency of which the absorption has been, in all probability, effected. It would appear as though the cells grew at the expense of the surrounding tissue. These spaces correspond entirely to the Haversian spaces before described; and in them the secondary bone is in the first instance formed. The process of formation of secondary bone appears to be everywhere

essentially the same, whether in the absorbed spaces, or on the surfaces, or in the membranes of the foetal cranium, except that in the two latter cases there is a pre-existing fibrous tissue, which, before ossification begins, undergoes a change similar to that which occurs in the bone itself, and is converted into a cellular mass; so that at the border where ossification is advancing there is only an arrangement of cells; while a little beyond that point the cells have fibrous tissue abundantly mixed up with them; and there is, in fact, a resemblance to fibrous tissue in an early state of formation. The formation of perfect bone is effected by means of cells, perhaps identical with those which are found replacing the previous tissue, but at all events undistinguishable from them by any microscopical characters. To these cells, which take part in the formation of bone, the authors have given the name of "osteal cells."* In the case of laminated bone they arrange themselves side by side, and, together with the transparent blastema in which they lie, become impregnated with ossific matter, and permanently fused with the bone tissue with which they lie in contact. By the linear arrangement of these osteal-cells, lamination is produced. In the case of non-laminated bone the cells are simply ossified without arrangement. Lying among the osteal-cells will be seen some which have accumulated around them a quantity of tissue which forms a thick investment to them; they then become granular, and take on in every respect the characters of a lacunal-cell. These are deposited at intervals along the line of ossification, and become blended with the general mass, the granular cell remaining as a lacuna, and sending out processes among the osteal-cells in all directions. In old bone, the cell character is in great part lost by a general blending of the constituents, but may in many specimens be still here and there recognized. Many instances are given in support of the conclusion, that absorption of bone and of dental tissue is effected directly through the influence of cells. We cannot, however, enter more fully into the subject, especially as many points cannot be rendered generally intelligible without reference to the specimens, or to the numerous drawings which accompany the paper.—*Med. Times and Gaz.* Oct. 2, 1852.

ORGANIC CHEMISTRY.

7. *On the Condition of Albumen in the Economy.*—M. MIALHE states, in the following propositions, the results of a series of chemical and physical investigations which he has been pursuing:—

1. The *normal* albumen of the serum of the blood and of white of egg does not traverse animal membrane. When, in endosmotic experiments, there appears a certain amount of albuminous matter in the external fluid, this is not normal, but *modified* albumen, proceeding from the maceration of the membranes, which have allowed the transudation of the albuminous matters with which they have become impregnated. When the animal membranes are placed in a preservative fluid, as syrup, or the membranes of the egg, which long resist maceration, and are perfectly endosmotic, are employed, the serum of the blood and white of egg never traverse them. Albumen is then insoluble.—2. This condition of insolubility should imply an organization similar to that of other substances which do not obey the laws of endosmosis, as fibrine, caseine, and cruor in animals, gluten and starch in plants—substances known to have a globular organization, and held in suspension by the liquids which act as their vehicles. The globular condition of albumen cannot be directly seen by the microscope, or even

* The views here brought forward of the removal and replacement of tissue through the agency of cells are, so far as the authors know, entirely new; and may have an important bearing on many points of physiology and pathology. Indeed, this is, perhaps, the first time that the fact (which has been generally assumed) of the entire absorption of tissue in the processes of nutrition, and its replacement by new tissue, has been demonstrated.

with the aid of barytes-water; and in spite of the analogies which lead to its admission, it cannot be considered as demonstrated. But it is certain that it must have a special organisation, which keeps it in a state of suspension instead of solution, and renders it precisely similar in chemical and physical properties to globular substances.—3. Like these globular substances, it must undergo modifications, in order to enter the economy, which render it soluble, and capable of assimilation; and albumen, *modified* by the ferment pepsin, becomes quite soluble, and capable of traversing membranes.—4. In consequence of these transformations, albumen exists in the economy in three very different conditions as regards their properties—viz., *normal* albumen, *modified* or *caseiform* albumen, and *albuminose*.—5. Morbid influences, by modifying the conditions of the physiological state of the membranes and the liquids, give rise to phenomena different from those which occur in the normal state. As a consequence of inflammations, excess of watery principles, defective viscosity, or the introduction into the economy of virus, miasms, poisons; or putrid ferments, the membranes cease to be endosmotic, and only present the phenomena of imbibition or filtration, analogous to those which take place after death. The vitiated and disorganized liquids (the blood and its elements) transude through the vessels, and appear in the splanchnic cavities, the cellular tissue, or the products of secretion.—6. Amidst this passage of albuminous matters into the dejections, we again meet with the three conditions of albumen, each connected with different pathological states—viz., *normal* albumen in extreme alterations of tissue, *modified* albumen in a vitiated state of the fluids, and *albuminose* in defective assimilation, or under the choleric influence.—*Brit. and For. Med.-Chirurg. Rev.* Oct. 1852, from *L'Union Médicale*, No. 90.

8. *On the Habitual Presence of Sugar in the Urine of the Aged*.—By M. DECHAMBRE.—During the great impulse which investigations into the characters of the excretions have received in the present time, we ought to be certain that some principles discovered are really due to a pathological condition, and do not, under some circumstances, exist normally. M. Bernard has shown that sugar may be physiologically produced by the liver; and the question is, what becomes of it. M. Reynoso has suggested that it is destroyed by pulmonary combustion, and that when the respiratory function becomes impeded, it will be found excreted in the urine. M. Dechambre taking up the question at this point, argues, that if insufficient hæmatisation gives rise to glucosuria, we ought to meet with this in the aged. He refers to the well-known researches into the condition of the respiratory organs of the aged, carried on by himself and M. Hourmann at the Salpêtrière, and described in the *Arch. Gén.* for 1835. These exhibited lateral depression of the thorax, projection of the sternum forwards, rigidity of the costo-vertebral articulations, ossification of the cartilages, and a rarefied condition of the pulmonary parenchyma, in which the cell-walls were found thinned or ruptured, and the capillary vessels obliterated. The defective hæmatisation which results from these physical changes should, then, favour the production of glucosuria; and experiments performed upon the urine of a considerable number of the aged women of the Salpêtrière have so constantly exhibited it, that M. Dechambre considers himself justified in asserting that *sugar exists habitually in the urine of the aged*, although its presence there may be possibly explained upon some other hypothesis.—*Brit. and For. Med.-Chirurg. Rev.* Oct. 1852, from *Rev. Méd.-Chirurg.* tom. xi. p. 289.

MATERIA MEDICA AND PHARMACY.

9. *Cod-Liver Oil*.—The admitted therapeutic advantages of this drug have excited a laudable desire on the part of many chemists, who make their scientific pursuits subservient to the practice of physic, to ascertain in what portion of its constituents its acknowledged remedial powers reside. The notion that the active agent was the almost infinitesimally small amount of iodine it con-

tains, or the so-called *gadin* of Dr. De Jongh, both of which are evidently merely impurities in the oil, has neither deserved nor obtained any general belief in the assertions that the powers of cod-liver oil could be rationally attributed to either iodine or gaduin. Dr. H. WINCKLER has, however, propounded a theory respecting cod-liver oil, far more reasonable than any which have yet appeared, and this he has supported by various experiments, which lend great weight to his hypothesis. This is, that cod-liver oil is a peculiar organic compound, differing in its constitution from all the oils which had hitherto been employed in pharmacy. It appears that when cod-liver oil is saponified with potash, it is converted into oleic and margaric acids, and *oxide of propyl*; that when oxide of lead is substituted for potash, *propyllic acid* is formed, and that in no case is oxide of glycol (glycerine), the usual product of saponification, produced. Thus, whilst other oils consist, for the most part, of oleic, margaric, or stearic acids combined with *glycerine*, the hydrated oxide of glycol; cod-liver oil is composed of the two former acids united to an oxide of the base *propyl*, $C^6 H^7$, replacing *glycol*, $C^6 H^2$, the usual basis of oils. These experiments and views of Dr. Winckler merit attention, for they shed much light upon the remedial nature of this oil, leading us to believe that it is a substance *sui generis*, differing not merely in its therapeutic action, but also in its chemical constitution from all other of the fatty oils used in medicine.—*Lond. Journ. Med.* Sept. 1852.

10. *Sulphate of Nickel as a Therapeutic Agent*.—Prof. SIMPSON, of Edinburgh, impressed with the belief that some of the new metals, like some of the old ones, will turn out to have decided, and, it may be, very important therapeutic properties, has made various therapeutic experiments with several of the former, among others with cadmium, iridium, tellurium, &c., but particularly nickel. This last, he has most frequently used in the form of a salt, and he gives the following statement of his results:—

“Sulphate of nickel has appeared to me to act as a gentle metallic tonic. I have generally used it in doses of half a grain or a grain, repeated thrice daily; and have given it in the form either of simple solution or of pill. In large doses, it is liable, like sulphate of zinc or copper, to produce sickness and nausea, particularly if taken upon an empty stomach. I have generally requested it to be taken half an hour or an hour after meals. It has appeared to me, as the result of pretty numerous experiments and observations, that the therapeutic actions of the salts of nickel and manganese correspond in a considerable degree with the therapeutic actions of the salts of iron upon the economy; and that these three metals might, under many conditions, be almost used as therapeutic substitutes for each other. But they also specifically differ from each other in some respects. For example, in one most interesting case, the sulphate of nickel arrested a severe form of periodic headache, which had previously defied iron in many different forms, and all other kinds of treatment that had been employed. The patient came from Italy last autumn, in order to place herself under my professional care; and for some months I was as unsuccessful as my predecessors had been in affording her any relief. But let me give the history of the affection, and the ultimate result, in the lady's own words. She drew up the following note of her case several weeks ago:—

“My headaches (she writes) came on soon after my second confinement in August, 1847, and continued to return every tenth day without intermission, up to the 1st of February, 1852. During the first four years I was in Italy, and was attended by medical men of all countries—English, French, German, and Italian. I also tried hydropathy and homoeopathy, the latter for six months, but all without the slightest effect. The pain came on in a small spot on the right temple, and lasted from twenty-four to thirty-six hours. After the first eight hours severe sickness followed, which continued up to the sixteenth hour. During the attacks I had violent cold shivering fits, succeeded by a burning fever. At times I was quite delirious from the violence of the pain. I have taken large doses of steel, iron, and quinine, besides many other sorts of medicines. The quinine I took at first only two days before the attack was expected. I then took six grains every day for a year and a half, but it never

put off the headache a moment beyond its day and hour, nor would anything that I could do bring it on before the time. When I first came to Scotland, to be under the advice of Dr. Simpson, in August, 1851, he gave me thirty grains of quinine a day for three days before the headache was to come on; but it returned to its hour, and as severe as ever. This was tried also with the next fit, with no better success. Dr. Simpson then tried successively furfurine, bebeerine, and arsenic, but the headaches still continued up to the 1st of February, 1852, on which day I had a most severe attack. On the 4th of February, he gave me the solution of sulphate of nickel to take; since which time, to my astonishment, my usual headaches have altogether disappeared.'

"To the preceding account I have merely to add, that, if we may judge from the result up to the present time, the cure of this patient from the use of nickel appears entire and complete. And perhaps it is but proper to remark, that this result seems fairly attributable to the action of the nickel alone, inasmuch as there was no relief under the use of any of the means or medicines previously employed for years; while convalescence distinctly began from the date of the employment of the metal in question.

"Further, it is perhaps not unimportant to observe, that while the disease had lasted four years without abatement, its subsidence in February could not be the result of change of climate, as the lady had already resided about five months in Edinburgh or its neighbourhood, without any noticeable amelioration in the recurrence and intensity of the headaches; and at last they disappeared under the nickel, at a period of the year—viz., the commencement of spring—at which, in our climate, headaches and other periodic diseases are known to be specially liable to become increased and aggravated.

"In no kind of case is the beneficial action of iron more remarkable than in the treatment of chlorosis and amenorrhœa. I have seen nickel in a similar way apparently serviceable under the same circumstances. In the latter end of last year, I gave it in a case of amenorrhœa of ten years' duration. The amenorrhœa supervened at the age of twenty-two. At the same time a galvanic intra-uterine bougie was introduced, and left for some time in the cavity of the uterus. In the course of three or four weeks menstruation took place, and has recurred regularly from that period. In such a case, however, it is difficult to say how far the result was attributable to the local means used, and what share the nickel had in the restoration of the patient's health."—*Monthly Journ. Med. Sci.* August, 1852.

11. *Therapeutic Action of Furfurine.*—Professor SIMPSON has experimented with furfurine—an alkaloid which produces, in experiments with poisonous doses upon the lower animals, many of the symptoms of quinine; and the salts of which he has found to act as a tonic, if not as an antiperiodic, when exhibited to the human subject.—*Monthly Journ. Med. Sci.* August, 1852.

12. *Experiments with Digitaline, performed by M. Andral in the Hôpital de la Charité.*—Dr. LEMAISTRE in an interesting memoir (*L'Union Médicale*, May, 1852) describes first the nature of the cases experimented on; second, the mode of administration of digitaline; thirdly, the various effects produced; and, lastly, draws some conclusions as to the therapeutic effects of the drug.

Nature of the Cases.—Nineteen patients were experimented on, viz.; several cases of chronic heart-disease; one of albuminuria; one of anæmia with intermittent fever; two of phthisis; one of acephalocyst of the pleura, with all the signs of extensive pleural effusion; two of acute pleurisy; two of acute rheumatism: one joint only being affected in one case, and several in the other.

Mode of Administration.—The digitaline was given in granules, according to the formula of M. Quevenne: each granule containing a *milligramme* (.015 of a grain). One granule, sometimes two, was first given in twenty-four hours; and the number was gradually increased to four. Six or seven granules in the day produced toxic symptoms: in one case, that of a youth of fifteen, obstinate vomiting was produced after two granules had been given. Commonly, it was on the third or fourth day, and after giving two or three granules per diem,

that vomiting, diarrhoea, and cephalalgia were produced. In other cases, five, six, or seven granules have been taken in the twenty-four hours without inconvenience: and, in two cases, ten and twelve were taken. The duration of treatment has varied from a few days to one or two weeks. The greatest number of granules administered during a course, has been, in five cases, respectively 23, 33, 44, 50, and 88—the latter including two courses.

Action of Digitaline. Circulation.—The following table shows the action of digitaline in lowering the frequency of the pulse:—

Case.	Minimum of Pulse before treatment.	Minimum of Pulse during treatment.	Difference.
Disease of the heart	108	68	40
“	92	72	20
“	80	68	12
“	76	51	25
“	104	100	4
“	64	60	4
“	44	44	0
“	76	58	18
Phthisis	84	76	8
“	68	64	4
Pleurisy	108	100	8
“	108	116	—
Hydatid of pleura	100	96	4
Rheumatism in one joint	96	80	16
“ in several joints	96	80	16
Anæmia	80	76	4

Some writers have described a much greater effect as being produced on the pulse than is shown in these tables; this has probably arisen from their having adopted, as a normal standard, the pulse of the patients at their first visit, and when they were excited by the presence of the medical attendant. Dr. Lemaistre observes that this will sometimes make a difference of twenty pulsations in a few minutes: and a great difference may even arise in a few moments. M. Andral did not give the digitaline until he had ascertained the state of the pulse by repeated examinations during several days.

The author (from the small number of observations) does not venture to recommend digitaline for its effect on the pulse, except in heart diseases; in which, by calming the circulation, it renders the pulse regular where it was before irregular. Very small doses will often produce this effect.

Digestive Organs.—The tongue almost always remained moist, without fur. The appetite and thirst were not influenced, except when poisonous effects were produced; then the desire for food was lost. During the first days of administering the digitaline, no effect was produced on the stomach. After a certain time, slight pain occurred: and, on the next day, there was nausea, sometimes followed by vomiting, usually abundant and mucous, and continuing for some hours, or even an entire day. These effects did not generally follow immediately after the administration of the medicine. The almost uniform coincidence of cerebral disturbance with these symptoms leads to the belief, that the gastric disorder was in a great measure sympathetic. There was, however, probably some direct effect on the intestinal mucous membrane. At first, there were borborygmi; the abdomen at the same time became somewhat distended, then slight spasmodic pains were felt; diarrhoea at last appeared, but was always scanty, and was preceded sometimes by colicky pains. All these symptoms soon disappeared, on ceasing the use of the medicine. Four or five granules *per diem* generally produced the disturbance of the digestive organs; in some cases, no such phenomena were observed.

Respiration.—In diseases of the heart, as soon as the calmative effect on the circulation was produced, the respiration, which had been oppressed, short, and anxious, became easy, full, and normal. In a case of phthisis, the patient said that his pulsation had become easier. But what conclusion can be drawn from a single case? In one or two cases the respiration was disturbed; one

patient complained of a sense of weight behind the sternum, of a kind of oppression which obliged him to sit up at night, the expectoration being at the same time impeded. These symptoms were evidently connected with cerebral disorder. MM. Andral and Lemaistre have not found much worthy of notice in the action of digitaline on respiration.

Kidneys.—In most of the cases, the patients passed urine more frequently; but it does not follow that the quantity of urine was always increased. In two cases of disease of the heart, and in the two cases of pleurisy, there was no increase in the quantity of urine. In the case of pleural hydatid, a little more urine was passed. In two cases of heart disease, in one case of phthisis, and in the case of albuminuria, the quantity was doubled, tripled, or even quadrupled: the urine at the same time became pale, and the specific gravity fell from 1012 and 1016 to 1008, 1004, and 1003. The diuretic effect was first observed on the third or fourth day; it continued two or three days, then rapidly decreased, and ceased entirely in some days, notwithstanding the continued use of the medicine. The diuresis was most abundant where there was œdema of the cellular tissue, which disappeared in a few days; while, in pleural effusion, the digitaline had little or no effect. The indications for the use of digitaline are then the same as for hydragogue purgatives; these succeed in cases of dropsy connected with albuminuria or heart disease, but fail in dropsy from local causes, as hydrothorax, hydropericardium, encysted dropsies, etc.

To obtain the diuretic action of digitaline, a full dose is generally required, and it must be given for three or four days. The authors believe that the digitaline does not act directly on the kidneys, but that it augments their secretion by lowering the circulation.

Nervous System.—In several patients, no effect was produced; but, in a large number of cases, the patients slept from a quarter of an hour to three hours during the day, although they had slept as usual during the night. This sleep appeared only at the commencement of the treatment, and was not perceived in a few days. The sleep was calm, and in no way fatigued the patients; it arose from the direct action of the digitaline on the brain. In other cases, there was merely some lassitude. But at a later period, when toxic phenomena, as disturbance of the stomach and intestines, appeared, then there sometimes occurred a heavy sleep, from which the patients awoke suddenly, and which fatigued them much. This was much less frequent than the first-described form.

The other most frequent disturbances of innervation were the following: The patient at first experienced general *malaise*; the head felt heavy; sleep, instead of being increased, was not only diminished, but even disturbed by frightful dreams, or even abolished, and replaced by constant restlessness. These symptoms were soon followed by cephalalgia lasting for several hours, with disturbance of vision: diplopia occurred in one case. Flashes of heat and vomiting were then observed. In a more advanced stage, the patients experienced vertigo; in other cases, there was extreme debility, and even fainting. In one case, the intellect was weakened, the countenance was dull, and questions were answered slowly. All these symptoms occurred only after the digitaline had been taken four or five days, and when the daily dose had been increased to four, five, or six granules. In one case, ten granules *per diem* produced no effect; while in another, two granules gave rise to symptoms of poisoning; but these were exceptional cases.

The disorders of innervation, like those of digestion, ceased or disappeared when the medicine was discontinued.

Conclusions.—Digitaline may be administered with benefit in cases of chronic heart disease, where the pulse is elevated and the circulation irregular; and in cases of dropsy arising from disease of the heart, or from an alteration in the blood. The effects over the circulation and renal secretion have been obtained by three granules a day; and four or five granules have produced toxic accidents: hence it is best not to give more than three granules, except in some rare cases. Instead of granules, an alcoholic solution may be employed, containing about three *milligrammes* in thirty drops. The action of digitaline seems nearly the same as that of digitalis, with the advantage of producing

less irritation of the digestive mucous membrane, and being more uniform in strength.—*London Journ. Med.* Sept. 1852.

13. *On the Action and on the Method of preparing Cathartine.*—TRENKLER prepares cathartine from the unripe green berries of *rhamnus cathartica*. It resembles pure aloethine, both in a chemical and in a therapeutical point of view. One or two grains of cathartine in the form of pills usually produce one or two, or in a susceptible patient, three or four pulpy stools, without griping. Three grains form a large dose. If the first dose should fail to produce the desired effect, a second may be given in three or four hours. Dr. GRAFF (of Darmstadt), who has carefully studied its therapeutic action, employs it in torpor of the bowels, in hepatic and splenic congestions, hemorrhoids, dropsy, and gout.

By simply treating the inspissated juice of the unripe berries with alcohol and ether, we may obtain an impure cathartine in considerable quantity (oz. viij, from 12 lbs.), which acts very powerfully, and much like aloes.—*Prov. Med. and Surg. Journ.* October 13, 1852. From *Jahrb. f. pr. Pharm.* January, 1852.

14. *On the Action of Trisnitrate of Bismuth.*—Dr. LUSSANA has been recently experimenting with this substance. In opposition to the views of Monneret, who published a memoir on it a few years ago, in which he maintains that it merely exerts a local and no general influence, and that it acts as a sedative on the intestinal mucous membrane, Lussana asserts that it certainly has a general action, and that it is absorbed into the system.

The following are the results of his experience of large doses in diarrhoea tuberculosa, in the diarrhoea accompanying chronic enteritis, in inveterate gastralgia, and in mesenteritis. It excites no irritation of the intestinal mucous membrane; it cannot check tuberculous and mesenteric diarrhoea. The feces were of a brownish-black colour, from the formation of sulphuret of bismuth in the intestine. A portion of the dose, varying with the amount of acid in the stomach and intestines, was dissolved and absorbed; but any of the dissolved portion, on meeting with an excess of alkaline chlorides in the intestine, was again precipitated. For this reason, it never appears in the urine, being precipitated by the alkaline chlorides in the blood serum. Its passage into the blood gives rise to colliquative and scorbutic phenomena.

To avoid this noxious general action, and at the same time to avail ourselves of the mechanical and local healing power of this medicine, we should previously give some antacid, as, for instance, magnesia usta, which would chemically prevent its solution and assimilation.—*Ibid.* From *Gazz. Med. Ital. Lombardiana*, 4, 1852.

15. *On the Action of Iodine.*—M. BONNET has recently published two interesting papers on the action of iodine. In the first of these, he shows that iodine, when applied locally to ulcers or blistered surfaces, or injected into the cavities of abscesses and serous membranes, becomes largely absorbed and excreted, being speedily detected in the urine and saliva. It may in this way be excreted by the urine to the extent of fifteen grains per diem, without in any way acting injuriously on the general health; and to be therapeutically useful, such elimination must be continued for six or eight weeks, as shown by the dark-blue colour produced in the urine by starch and chlorine without preliminary evaporation. In this way, scrofulous ophthalmia may be effectually cured by dressing a blistered surface, remote from the eyes, without the employment of any internal or local medication. The best of all the preparations for this mode of employment, is an ointment composed of iodine one part, iodide of potassium two parts, and lard thirty parts.

In his other paper, M. Bonnet enters upon the consideration of the mode of action of iodine. He considers that it only operates beneficially in proportion to the amount of eliminatory action it gives rise to, in which respect it surpasses most other substances; or at all events, our chemical reagents enable us better to trace its operation. In the diseases in which the iodine proves useful, there is also morbid material to eliminate, and by catalytic action the economy

is enabled to effect this by the eliminatory effort excited by the iodine. The greater activity of elimination is followed by a greater activity in the renovation of organic material. In consonance with this view, M. Bonnet observes—1. If we are desirous of acting energetically on the economy by means of iodine, we must maintain this active twofold power of absorption and elimination. The patients in whom he has found its use to be especially attended by increase of appetite and strength, are those suffering from large ulcers, in whom the tests exhibited the free excretion of the iodine by the urine; while after each dressing of the ulcer with it, a temporary feeling of febrile heat of the skin was induced.—2. The employment of the medicine should be associated with good hygienic measures, which render the organic renovation more active, and with such remedies as favour elimination. Thus, exercise, free exposure to the air, purgatives, and diaphoretics, second the effects of the iodine, as it in turn augments the influence of these agents.—3. Iodine is no specific, and might be replaced by any substance which can easily penetrate into the economy, and of which the latter can easily rid itself again. Among such are sulphureous and terebinthine preparations, whose excretion is demonstrable, and probably the salts of mineral waters, which, however, our means are unable to detect in the excretions. However this may be, the most varied substances produce effects in common with iodine; and it is this common character of their mode of action which explains how they may be substituted for each other, when the power of exciting eliminatory action becomes enfeebled in either of them.—4. Notwithstanding this view of the eliminatory action of iodine, M. Bonnet believes the action of the iodides on the blood and fibrine, as shown by the experiments of Dumas and himself, must not be overlooked. When an alkaline iodide penetrates into the blood, it exerts a solvent action. If the fibrinous elements are in their normal fluid state, it may only render them less disposed to coagulate; while if they are coagulated it dissolves them. Such coagulation exists within vessels that are the subject of inflammation, and beyond the vessels when effusion of lymph has taken place into the tissues.—*Brit. and For. Med.-Chirurg. Rev.* Oct. 1852, from *Gaz. Médicale*, Nos. 20, 21, 22.

16. *On the Effects of Iodine on the Glandular System.*—The question has been mooted, whether atrophy or absorption ever takes place in the glandular system from the use of iodine. In our preceding number (p. 495), we have given the results of the large experience of Dr. L. Parker, which gives no countenance to the belief of the powers of iodine in promoting the absorption of glands; and Dr. T. H. SILVESTER has recently (*Prov. Med. and Surg. Journ.* Sept. 1, 1852) adduced his observations, the result of many years' attention to this point, in support of the same conclusion. Dr. S. states that "from 1834 to 1844, a great many patients, suffering under secondary or tertiary syphilis, were admitted into St. Thomas's Hospital, more especially under the care of the late Dr. Williams, who had gained a high reputation in the treatment of these morbid symptoms. Most of these patients came under my notice and particular observation, and many of the remarkable cases were entered in my note-book; but not one instance of atrophy or absorption of the large glands occurred in our experience. It was thought advisable, on the recommendation of Lugol, to test the efficacy of the iodide of potassium in scrofulous enlargement of the glands, and in order to give M. Lugol's method of treatment fair play, a most characteristic specimen of these affections was selected. A young woman, fat, florid, and fair, aged 18, was admitted with suppurating glands at the angle of the jaw, and others approaching suppuration, or hard and inflamed, extending to the chin, were conspicuously prominent. Eight grains of the iodide of potassium, in camphor mixture, were prescribed, and steadily administered, for nearly six months, without the slightest perceptible effect upon the scrofulous mass of glands, and she was presented in much the same state as at her admission. Now, it happened that in this girl the breasts were largely developed, but no change was produced in their size by the treatment adopted for the scrofulous ailment, notwithstanding the full dose, and prolonged administration of the iodide.

"There were at this period, before the treatment had become generally known, innumerable cases of syphilitic periostitis, in which the iodide of potassium was very successful, and yet we never witnessed atrophy or absorption of either the breast or testicle during the use of this medicine. A case of simple hypertrophy of the breasts was then made the subject of experiment; eight grains of the drug were taken, steadily and continuously, for three months, but no diminution of the mammæ took place.

"A boy, aged 12, presented himself with immensely enlarged tonsils, and took the iodide nearly six months, without any impression having been made upon these organs. It would weary you to bring forward further illustration on this subject, and this negative kind of argument is, I am aware, not perfectly satisfactory, and may be destroyed by a single example of the positive power of the remedy in causing absorption of either the breast or testicle; but ten years' observation in a large hospital failed to furnish me with a single proof in favour of the opinion that atrophy or absorption of the glandular system, in its normal condition, arises from the use of iodine in any form. Experience as to the topical application of this powerful agent, involves an inquiry into the effects of friction, stimulation, protection, and warmth, and excludes all inference as to its specific property. It must be confessed that enlarged testicles not unfrequently yield to its influence; but it will be found, on inquiry, that in these cases the system had been contaminated by the syphilitic poison. The same remark is applicable to chronic induration of the inguinal glands. It is a very remarkable fact, that the swelling of the thyroid body, in common bronchocoele, vanishes under the internal use of iodine, especially the iodine of potassium. The rapidity and certainty of its removal are equalled only by that of the venereal node; and I have sometimes thought that there may be a vital elective attraction between the iodine and the lime, which latter forms the basis of the nodal tumour, and is, probably, the chief element in the thyroid enlargement.

"It still remains to be explained how it happens that tumours, enlargement, and thickenings, of a nature other than have been noticed, disappear under the use, topical or internal, of the remedy in question: the explanation is undoubtedly difficult; but I may be allowed to remark that there is an absence of permanency in the glands generally, the thyroid disappears spontaneously, the tonsils naturally at puberty, the breasts in advanced age, and sometimes the testicles and ovaries; and there are few practitioners who have not met with cases of absorption of the breasts and testicles from some unknown cause, and in morbid instances when no medicine has been taken. I have over and over again known and seen large swellings vanish under the long-continued application of a poultice, or wet lint and oil silk; and an equal number of failures, where iodine, internally and externally, was had recourse to, have occurred to me."

17. *New Mode of employing Iodine.*—M. HANNON has suggested, that when iodine is to be applied to a local tumour, as to a goitre, it should not be rubbed in at once—a practice which often irritates the skin excessively—but that it should be placed between two layers of cotton wool, sewed in a bag, and tied directly over the part. The vapour of the iodine rapidly penetrates through the bag, and stains both the skin and the linen. To prevent this, a thin sheet of gutta percha or gummed silk is placed over the bag. It is indispensable to put the iodine between two layers of wadding; if placed merely in a bag, it passes through and blisters the surface like ammonia. Applied in this way, iodine enters the system with great rapidity, and appears in all the excretions. —*Med. Times and Gaz.* Sept. 4, from *Presse Medicale*.

18. *Urea as a Diuretic.*—Dr. T. H. TANNER states (*Med. Times and Gaz.* May 8, 1852), that he has employed urea as a diuretic and found it very efficient, and in no case has it given rise to any unpleasant symptoms. The ordinary dose, on being first used, is ten grains every six hours, dissolved in water flavoured with syrup; as its effects decrease the dose may be augmented to a scruple or more. At the same time, its action should be aided, as that of all

diuretics should be, by the free administration of diluents, as well as by keeping the skin moderately cool.

In the first case in which Dr. T. used the urea, and the one in which he more particularly noted its effects, the quantity of urine secreted in the twenty-four hours previous to its administration was only fourteen ounces (high-coloured, acid, sp. gr. 1018), whereas, in the succeeding twenty-four hours, during which three doses of ten grains each were administered, the secretion amounted to forty-four ounces (pale, acid, sp. gr. 1013). The remedy was continued for the ensuing nine days, in doses of ten grains every six hours, during which period the urine varied in quantity from forty-nine to thirty-eight ounces. At the end of this time it was discontinued, as the dropsy had been temporarily removed; and, on again having recourse to it three weeks subsequently, its effects were as satisfactory.

19. *Chromic Acid as an Escharotic*—This acid is recommended by Dr. HELLER, a German physician, as a useful escharotic in severe cases, when properly and judiciously used. According to his experiments, all organic compounds are soluble in the readily deoxidizable chromic acid; the smaller animals, such as mice and birds, were so completely dissolved by chromic acid in the space of fifteen to twenty minutes, that no traces even of their bones, skin, hair, claws, or teeth could be discovered; so that it would appear that this metallic acid is not only both a safe and gradual escharotic, but furnishes us with another rapid and efficient solvent for organic animal matter.—*London Journ. Med.* Sept. 1852, from *Annals of Pharmacy*.

20. *Copahine-Mège*.—This is the name of a peculiar preparation of copaiba and cubebs proposed by M. JOZEAU, a French pharmacien in London, with which trials have lately been made in some of the London hospitals and in private practice, and it is said (*Lancet*, Nov. 6, 1852) with very satisfactory results.

The peculiarity of M. JozEAU's saccharated capsules is stated to be that they are easy and agreeable to take, that they produce no nausea, sickness, or unpleasant purging, and that, when continued for a sufficient period, they cure gonorrhoea in a short time. Considering the insuperable dislike of some patients for copaiba, these, if verified by experience, are certainly most valuable improvements.

The following is the account given by M. JozEAU of the preparation of the copahine-mège, and the pathological facts which led to the peculiar manner of preparing this remedial agent:—

It was noticed that such patients as were purged by the copaiba evacuated per anum large quantities of this drug in an unaltered state, their urine not containing any of it. These persons, though sometimes cured, generally had a relapse. Those, however, who were not purged became well more slowly, and had no recurrence of the disease; their stools contained no copaiba, and their urine a great deal. From these facts it became evident that, in order to obtain regular and speedy effects, the copaiba should be made to undergo such modifications as to insure its more complete absorption into the system. Experiments were now instituted respecting the effects of the two principal substances contained in the copaiba—viz., the oil and the resin. These were separately tried. The oil produced a decidedly purgative effect; the resin purged less; but no complete cure was obtained by either substance taken separately.

It was now pretty clear that both the resin and essential oil were indispensable for obtaining curative effects, and the question arose how these could be modified so as to allow the stomach to digest them completely. This end was attained in surcharging the copaiba with oxygen, by means of nitric acid, the latter being added in proportions which varied according to the kind of copaiba acted upon. The nitric acid yields some of its oxygen to the essential oil, and the nitrogen is given off in the form of hyponitrous acid, by combining with the oxygen of the atmosphere. The copaiba thus treated is then well washed with water, until it no longer reddens litmus paper, and to it are added one-tenth part of cubebs in fine powder, the same proportion of carbonate of soda,

and one-sixteenth part of calcined magnesia. The mixture is allowed to stand until it is quite solidified, and in that state it is made into small masses. The latter are then carefully covered with sugar, to which a pleasant pink colour (occus cacti) is given, and they then look like very pretty sugar-plums.

To these saccharated capsules the name of copahine-mège was given, because the experiments had been made conjointly by M. Jozeau and M. Mège, and the latter had first thought of making the saccharated capsules. For lymphatic patients and delicate females a second mass was prepared, into which, besides the above-mentioned ingredients, some steel was made to enter. This is then a sort of martial preparation of copaiba. The doses are stated as follows:—

When there is neither pain nor inflammation, five saccharated capsules are taken three times per diem. One capsule more is then given with each dose every subsequent day, the doses being thus increased until purging is produced. Where there is pain or inflammation, these should first be treated by the surgeon in the manner he thinks the most advisable, and the copahine is to be commenced when acute symptoms have abated. It has been noticed that the martial capsules have effected a cure when the simple preparation has failed.

21. *Opianine, a New Base of Opium.*—A Vienna apothecary was recently preparing morphia from a specimen of Egyptian opium; with the morphia which he obtained there was mixed another alkaloid, which he supposed to be narcotine, but which Dr. HINTERBERGER discovered to be a new base, and named *opianine*. It crystallizes in long, colourless, transparent, glistening needles. It contains sixty-six atoms of carbon, thirty-six of hydrogen, two of nitrogen, and twenty-one of oxygen. It is insoluble in water, and only very slightly soluble in boiling alcohol, from which it crystallizes on cooling. In its narcotic action, it appears strongly to resemble morphia. A parallel experiment was tried with two kittens (each six months old). To one was given two grains of pure morphia, and to the other an equal quantity of opianine. In the course of eight minutes both kittens presented the following symptoms: The pupils were very much dilated, the eyes were fixed, the tails were drawn inwards, and there was foaming at the mouth; afterwards, they walked unsteadily, trembled, and vomited, uttered occasional cries, and there was paralysis of the hind legs; they finally lay down, could no longer be roused, and were insensible to the action of caustic ammonia. In the course of a day they both recovered.—*Prov. Med. and Surg. Journal*, Nov. 24, 1852. From *Hinterberger, Sitz.-Bericht der Wien. Akad., der Wissensch.* Bd. 7, No. 3.

22. *Solvent for Disulphate of Quina.*—Tartaric acid has been recommended as a better solvent for *quina disulphas* than diluted sulphuric acid, the agent usually employed to facilitate its solution in water; one-third of the weight of the quina salt is a sufficient proportion of the tartaric acid to effect complete solution, which is by no means unpleasant to the taste, a great improvement on the intense bitterness of the ordinary solution of this salt made with diluted sulphuric acid. We have long thought it far more advisable to exhibit the alkaloids in combination with some vegetable organic acid, such as the tartaric, citric, etc., than as salts for the inorganic acids, in which latter state they are usually employed.—*Lond. Journ. Med.* Sept. 1852.

23. *Pagliari's Hæmostatic.* By M. SEDILLOT.—M. PAGLIARI, a pharmacien at Rome, professes to have discovered a styptic liquor of great power; and several of the officers of the French army have testified to its efficacy. M. Sédillot has also, on several occasions, brought forward cases in corroboration; and in the present paper he adduces additional ones, in some of which, considerable vessels, although not those of the first class, furnished the blood. He says that it has been objected that compression is employed by means of bandages and charpie; but this is merely to prevent the coagula which form being removed from the mouths of the vessels; and it has only to be continued for twenty-four or forty-eight hours. So little plastic is human blood, that compression alone,

unaided by styptics, would have to be so prolonged and forcible, that it would risk the formation of ulcers or gangrene in the parts to which it was applied.

M. Pagliari has now revealed the composition, which is as follows: Eight ounces of tincture of benzoin, one pound of alum, and ten pounds of water are boiled together for six hours in a glazed earthen vessel, the vaporized water being constantly replaced by hot water, so as not to interrupt the ebullition, and the resinous mass kept stirred round. The fluid is then filtered, and kept in stoppered bottles. It is limpid, slightly styptic in taste, aromatic in odour, and the colour of champagne. M. Hepp, of Strasburg, has substituted white resin for the benzoin. Every drop of this fluid poured into a glass containing human blood produces an instantaneous magma; and, by increasing the proportion of the styptic to the quantity of the blood, a dense, homogeneous, blackish mass results.

Many are the circumstances in which the surgeon may not be able to have recourse to the ligature, as in the case of friable arteries, secondary hemorrhage from deep-seated, painful, or inflamed wounds, the impossibility of seizing the artery, or where the hemorrhage results from numerous arterioles, which are too small or retracted, or from veins and capillary vessels. In all cases, in fact, where compression is now usually employed, without much benefit being expected to result from it, and often indeed proving useless or dangerous, this fluid seems indicated.—*Brit. and For. Med.-Chirurg. Rev.* Oct. 1852, from *Bull. de Thérap.* tom. xlii.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

24. *Curability of Insanity.*—Dr. FORBES WINSLOW expresses (*Lettsomian Lectures, Lancet*, October 9, 1852) the following opinion on this interesting subject:—

"I now speak from a somewhat enlarged experience, from much consideration of the matter, and I have no hesitation in affirming that, if brought within the sphere of medical treatment in the earlier stages, or even within a few months of the attack, insanity, unless the result of severe physical injury to the head, or connected with a peculiar conformation of chest and cranium, and an hereditary diathesis, *is as easily curable as any other form of bodily disease for the treatment of which we apply the resources of our art.* It is a lamentable error to suppose, and a dangerous, false, and unhappy doctrine to promulgate, that the disordered affections of the mind are not amenable to the recognized principles of medical science.* I again declare it to be my positive and deliberately formed opinion, that there are few diseases of equal magnitude so susceptible of successful medical treatment in the incipient form as those implicating the normal action of thought. The vast amount of incurable cases of insanity which crowd the wards of our national and private asylums, is pregnant with important truths. In the history of these unhappy persons—these lost and ruined minds—we read recorded the sad, melancholy, and lamentable results of either a

* "You do not pretend to *cure* insanity?" exclaimed a gentleman of considerable intelligence to me, whilst detailing the particulars of a distressing attack occurring in a member of his own family; "for," he continued, "I heard Dr. — positively declare in a public lecture, that '*he lamented to be obliged to say, that, in the cure of insanity, little or no good resulted from medical treatment.*'" Sad and fatal doctrine! Whilst recently visiting Bethlehem Hospital, to see, at the request of their friends, two patients in that establishment, I heard a foreigner who had been inspecting the asylum observe, whilst talking of the medical treatment of insanity, that it was quite a mistake to have a portion of the asylum set apart for the "incurable patients." "*The word 'incurable,' in reference to insanity,*" he continued, "*should never be used.*" I would much prefer pinning my faith to the doctrine of the foreigner than to that of the English physician, who attempted to weaken our confidence in the curability of insanity by means of medicine.

total neglect of all efficient curative treatment at a period when it might have arrested the onward advance of the cerebral mischief, and maintained reason upon her seat; or of the use of injudicious and unjustifiable measures under mistaken notions of the nature and pathology of the disease. In no class of affections is it so imperatively necessary to inculcate the importance of early and prompt treatment, as in the disorders of the brain affecting the manifestations of the mind. I do not maintain that our curative agents are of no avail when the disease has passed beyond what is designated the "curable stage." My experience irresistibly leads to the conclusion that we have often in our power the means of curing insanity, even after it has been of some years' duration, if we obtain a thorough appreciation of the physical and mental aspects of the case, and perseveringly and continuously apply remedial measures for its removal; but I cannot dwell too strongly upon the vital necessity of the early and prompt exhibition of curative means in the incipient stage of mental derangement:—

'Principiis obsta: sero medicina paratur
Cum mala per longas convaluere moras.'—OVID."

25. *Pathology of Insanity.*—The following are the conclusions at which Dr. FORBES WINSLOW has arrived in relation to this vexed subject:—

"I believe insanity (I am now referring to persistent insanity, not those transient and evanescent forms of disturbed mind occasionally witnessed) to be the result of a *specific morbid action of the hemispherical ganglia, ranging from irritation, passive and active congestion, up to positive and unmistakable inflammatory action.* This state of the brain may be confined to one or two of the six layers composing the hemispherical ganglia; but all the layers are generally more or less implicated, in conjunction with the tubular fibres passing from the hemispheres through the vesicular neurine. This specific inflammation, from its incipient to the more advanced stage, is often associated with great vital and nervous depression. It is, like analogous inflammations of other structures, not often accompanied by much constitutional or febrile disturbance, unless it loses its specific features, and approximates in its character to the inflammation of active cerebritis or meningitis. This state of the hemispherical ganglia is frequently conjoined with active sanguineous circulation and congestion, both of the substance of the brain and its investing membranes. The morbid cerebral pathological phenomena—viz., the opacity of the arachnoid, the thickening of the dura mater, its adhesions to the cranium, the depositions so often observed upon the convoluted surface of the hemispheres, and on the meninges, the hypertrophy, scirrhous, the cancerous affections, the induration, the depositions of bony matter in the cerebral vessels and on the dura mater, the serous fluids in and the ulcerations upon the surface of the ventricles, the alterations in the size, consistence, colour, and chemical composition of the vesicular neurine and fibrous portion of the brain—are all, in my opinion, the results, the sequelæ, more or less, of that specific inflammatory condition of the hemispherical ganglia to which I have referred. It does not necessarily follow that the *fons et origo mali* of insanity is invariably to be traced to the brain. The preliminary morbid action and irritation are often situated in the heart, the stomach, the liver, the bowels, the lungs, or the kidneys, the brain being secondarily affected; nevertheless, in all cases inducing actual insanity, the hemispherical ganglia are involved in the morbid action,"—*Lettsomian Lectures, Lancet*, October 9, 1852.

26. *Medical Treatment of Insanity.*—The following interesting and instructive remarks on this subject, by Dr. FORBES WINSLOW, are well worthy of attention:—

"In regard to the treatment of acute mania, the important and much litigated question at issue among practitioners of all countries, is that relating to the propriety of depletion. Need I direct your attention to the conflicting and contradictory opinions entertained by eminent writers on this important and much vexed therapeutical point? Whilst some practitioners of great repute and enlarged experience fearlessly recommend copious general depletion for

the treatment of insanity, and refer to cases in which this practice has been attended with the happiest results, others, equally eminent, and as much entitled to our respect, denounce the lancet as a most fatally dangerous weapon, and shudder at the suggestion of abstracting, even locally, the smallest quantity of blood. In avoiding Scylla, we must be cautious of being impelled into Charybdis. The error consists in a vain effort to discover a uniform rule of treatment, and attempting to propound some specific mode of procedure adapted to all cases. He who maintains that bloodletting is never to be adopted in the treatment of mania, without reference to its character, its origin, the peculiar constitution of the patient, and the existence of local physical morbid conditions, which may be materially modifying the disease, and giving active development to delusive impressions, is not a safe practitioner. Neither would I confide in the judgment of the physician who would, in every case of violent maniacal excitement, attempt to tranquilize the patient by either general or local depletion.

"In attacks of insanity, when the symptoms are acute, the patients young and plethoric, the habitual secretions suppressed, the head hot and painful, the eyes intolerant of light, the conjunctivæ injected, the pupils contracted, the pulse rapid and hard, and the paroxysm sudden in its development, one general bleeding will often arrest the progress of the cerebral mischief, greatly facilitate the application of other remedies, and ultimately promote recovery. In proportion as the symptoms of ordinary insanity approach those of phrenitis, shall we be justified in the use of general depletion. Although it is only occasionally, in instances presenting peculiar characteristic features—cases occurring in the higher ranks of life, where the patient has been in the habit of living *above par*, and is of a sanguineous temperament—that we are justified in having recourse to the lancet, there is a large class of recent cases presenting themselves in the asylums for the insane, both public and private, in the treatment of which we should be guilty of culpable and cruel negligence, if we were to omit to relieve the cerebral symptoms by means of the local abstraction of blood. It is, alas! the fashion and caprice of the day to recklessly decry the application of cupping-glasses or of leeches in the treatment of insanity, in consequence, I think, of the slavish deference shown to the opinions of a few French pathologists of eminence, who have, by their indiscriminate denunciation of *all depletion*, frightened us into submission, and compelled us to do violence to our own judgment. The local abstraction of blood is, in the hands of the discreet and judicious practitioner, a powerful curative agent; and yet it is the practice of some men, and men, too, of position, to discard altogether the remedy.

"I will briefly refer to the kind of case in which the local abstraction of blood will be found most beneficial, if proper regard be had to the temperament, constitutional condition, and the local circumstances modifying the character of the attack. In insanity, when the exacerbations occur at the menstrual period, *cæteris paribus*, leeches to the vulva and thighs, with the use of the foot-bath, and the exhibition of aloetic purgatives, will be attended by the most favourable results. In irregular and obstructed menstruation, the local abstraction of blood will be very serviceable. In suppressed hemorrhoids, leeches to the neighbourhood of the sphincter ani will greatly benefit in unloading the hemorrhoidal vessels, and relieve the brain of undue excitement. In cases of nymphomania, leeches to the vulva are indicated, and have been known to greatly benefit. In cases of intermittent insanity, the paroxysm may often be cut short by relieving the overloaded state of the vessels of the head by means of cupping or the application of leeches. In some instances, I have tried Dr. Wigan's plan, and have applied leeches to the Schneiderian membrane, particularly for the treatment of insanity of early life, and connected with conduct evidently the effect of cerebral irritation. I have seen this mode of procedure of essential benefit in persons of plethoric constitution and of sanguineous temperament. Occasionally, the insanity is found to be associated with active visceral disease, or with hypertrophy and other affections of the heart. Under these circumstances, when there exists great tenderness over the region of any of the visceral organs, and we are satisfied, by a careful stethoscopic examina-

tion, that hypertrophy of the heart is present, leeches applied over the seat of the local mischief, conjoined with other appropriate treatment, will materially aid us in subduing the maniacal affection. In cases of illusions of hearing, or of vision, it will often be necessary to apply leeches behind the ears, or over the superciliary ridges. I have known this practice entirely remove the merbid illusions which had been embittering the person's life.

"But apart entirely from the local affections to which I have referred, for the treatment of idiopathic insanity, apparently without any complications, or modified by any of the associated diseases, the careful and temperate local abstraction of blood, when general depletion is inadmissible, will often materially shorten the duration of an attack of insanity, and restore the mind to a healthy condition. I am anxious to record my favourable opinion of this mode of treatment, because I have witnessed so many sad results from an opposite timid and reprehensible neglect of the means placed within our power for the treatment of the varied forms and degrees of mental derangement. Sad consequences have undoubtedly followed the indiscriminate use of depletory measures; the presence of violent mental excitement has occasionally led the practitioner to the conclusion that the disease was of an active character; and in the attempt to allay the undue cerebral excitement by means of antiphlogistic measures, the patient has sunk into incurable and hopeless dementia. But whilst recognising an *anæmic* class of cases, where great excitement is often associated with loss of nervous and vital power, we must be cautious in permitting serious disease to be creeping stealthily on in the brain, no effort being made to relieve the congested cerebral vessels or inflamed tissue, until serious disorganization has taken place in the delicate structure of the vesicular matter, and the patient is forever lost. In the treatment of acute mania, the remedy next in importance to cautious depletion is that of *prolonged hot baths*. To Dr. Briere de Boismont, of Paris, at whose excellent institution I first witnessed the application of this remedial agent, the profession is indebted for reviving a practice which had long fallen into disrepute. In the treatment of acute mania, the prolonged hot baths will be found of the most essential service. Dr. Briere de Boismont has recorded the history of sixty-one of seventy-two cases that were subjected to this mode of treatment. Three-fourths of this number were cured in a week, and the remainder in a fortnight. The patients remain from eight to ten and fifteen hours in warm baths, whilst a current of cold water is continually poured over the head; the temperature of these baths is from 82° to 86° Fahr.; the affusions 60° Fahr. Among the therapeutic effects of these baths, Dr. B. de Boismont reckons a diminution of the circulation and respiration, relaxation of the skin, alleviation of thirst, the introduction of a considerable quantity of water into the economy, an abundant discharge of limpid urine, a tendency to sleep, a state of repose. This mode of treatment is said to be ineffectual in cases of periodic intermittent mania, in mania beginning with great mental impairment, or associated with epilepsy or general paralysis. The result of my own experience of this plan of treatment has produced a very favourable impression upon my mind, and I think it is entitled to a fair trial in all our public asylums where they admit acute and recent cases.

"In some forms of acute mania it is desirable, as a substitute for depletion, to diminish the activity of the circulation by the exhibition of nauseating doses of the tartrate of antimony; it may be serviceably combined with the tinctures of digitalis and hyoscyamus. This remedy, however, requires careful watching, as it often has been known to suddenly reduce the vital powers to a low ebb, and extinguish life. It will be found beneficial in proportion to the recent character of the case, and the positive activity of the cerebral circulation. The tincture of digitalis was formerly in great repute as an anti-maniacal remedy; the experience of late years has not encouraged us in administering it in the doses prescribed by some of the old writers; nevertheless, it is a useful agent, and occasionally proves a valuable auxiliary in the hand of the practitioner who carefully watches its operation.

"For the cure of the acute forms of insanity the douche bath has been much lauded; but this remedy is now rarely used in British asylums. I have occasionally seen benefit derived from its exhibition, but it requires great caution

in its use. A patient has been subjected, whilst in a paroxysm of acute delirium, to the douche bath, and has sunk almost immediately into incurable idiocy! The physical shock has occasionally been known to produce a good moral impression. For illustration: a patient imagined himself emperor of the world, and would not allow any one to address him by any other title. The immediate application of the douche bath destroyed his idea of royal dignity, and he was willing to admit that he had never been, nor was at any time a regal personage. A few hours subsequently the delusive impression returned in all its original force; the douche bath was again had recourse to, and a second time the morbid impression vanished; by a series of baths he was restored to sanity, and after his complete recovery, when the particulars of his case were placed before him, he observed, 'Why did you not whip me, and beat this nonsense out of my head? I wonder how you could have borne with my folly, or I have been guilty of such contemptible arrogance and obstinacy.' As a substitute for the douche, the shower bath is often used with great benefit, particularly in certain forms of melancholia, associated with nervous depression and general debility. In cases of melancholia, or other kinds of chronic insanity connected with a congested state of the liver, the nitro-muriatic bath will occasionally do much good. In a few instances, I have noticed marked benefit from the use of Bertolini's sedative bath, composed of henbane two pounds, and equal parts of hemlock and cherry-laurel leaves, well infused in a sufficient quantity of hot water. But the simple hot bath in certain conditions of the nervous system, particularly in some forms of suicidal mania, is of the utmost benefit. A warm bath a short period before retiring to rest, bathing the head at the same time with cold water, particularly if the scalp be unnaturally hot, will often insure a quiet and composed night when no description of sedative, however potent its character and dose, would influence the system.

"In the early stage of insanity, and throughout its whole course, the bowels are often in an obstinately constipated condition. The concentration of nervous energy in the brain appears to interfere with that supply which should proceed to other structures; consequently, there appear to be a want of healthy sensibility in the mucous membrane of the bowels and an interruption of the peristaltic action of the intestinal canal. There is no class of agents which act so certainly and effectually in relieving the mind when under the influence of depressing emotion, as cathartics. The ancients considered hellebore as a specific in certain forms of melancholia. In the hands of modern practitioners it has not been found to merit the high encomiums which have been passed upon it. It is important in every case of insanity, but particularly in the acute stages of mental derangement, to act powerfully upon the bowels by means of a succession of brisk cathartics. The bowels are often found gorged with fecal matter, and immediate relief often follows the administration of two or three doses of calomel and colocynth, or of croton oil. It will often be necessary to assist the operation of the cathartics by means of enemata. In hysterical and some other forms of insanity, there is always a disposition on the part of the patient resolutely to resist the calls of nature, and, knowing this peculiarity, we must carefully watch the condition of the bowels, otherwise serious mechanical obstructions may ensue, followed by intractable diseases of the rectum. Insanity is often associated with gastric and intestinal disease, with an irritable condition of the mucous membrane of the alimentary canal; and, in such cases, although it is important to relieve the bowels and prevent them from being constipated, we must bear in mind that the injudicious exhibition of irritating drastic cathartics may aggravate the mental disease, by increasing the gastric and intestinal irritation, and thus do permanent and irremediable mischief. Much injury may arise from the indiscriminate and injudicious administration of cathartics. In insanity associated with menstrual obstructions, it will be necessary to exhibit the class of purgatives known to act specifically upon the lower bowel; consequently, aloetic cathartics, such as the compound decoction of aloes, are found of most service in these cases. In plethoric habits, when there is a marked determination of blood to the head, no medicine will relieve so speedily as active doses of the compound powder of jalap.

"In the treatment of insanity, the class of medicines termed *sedative* play an important part. If exhibited with judgment, the most gratifying results often follow *their continuous and persevering administration*. The sedative treatment of insanity is a subject of itself, and I quite despair of touching even upon the confines of the many interesting and important points involved in the consideration of this division of my lecture. In insanity unassociated with active cerebral circulation, congestion, or paralysis, or after the head symptoms have been relieved by the local abstraction of blood and the administration of appropriate medicine, the exhibition of sedatives will be followed by the most beneficial results. In recent cases they are generally inadmissible, except in delirium tremens and puerperal insanity, and other forms of derangement analogous in their pathological character and symptoms to these affections. In chronic insanity, in melancholia unconnected with abdominal repletion, or visceral disease, the persevering use of sedatives in various combinations will often re-establish sanity, when no other course of treatment is likely to be successful in dispelling the illusive impressions, or raising the drooping and desponding spirits. Battley's solution, the tincture of opium, the meconite, acetate, and hydrochlorate of morphia, the preparations of hyoscyamus, conium, stramonium, camphor, hops, aconite, ether, chloroform, hydrocyanic acid, Indian hemp, are all of great and essential service if administered with judgment and sagacity. In suicidal insanity, when local cerebral congestion is absent, and the general health and secretions are in good condition, the meconite and hydrochlorate of morphia often act like a charm, if *uninterruptedly and perseveringly given* until the nervous system is completely under its influence. I have witnessed the most distressing attacks of suicidal mania yield to this treatment, when every other system had failed. I could cite the particulars of numerous cases of this form of insanity radically cured by the occasional local abstraction of blood from the head, the administration of alteratives, the warm bath, and sedatives. In the use of this powerful curative agent, our success will often depend upon a *ready adaptation of the kind of sedative to the description of case in which it may be deemed admissible, and a judicious combination of various kinds of sedatives*. I do not think we pay sufficient attention to such combinations. I have often seen an apparently incurable and unmanageable case yield to several kinds of sedatives combined, when it resisted the operation of any one or two. The extract of conium is often of service in cases of insanity combined with epilepsy; conjoined with mineral tonics, conium is occasionally of benefit, particularly in melancholia connected with chronic disease of the digestive organs and with neuralgia. In cases of uterine irritation, I have seen great good result from the combination of hops, camphor, and hyoscyamus. In illusions of vision, belladonna, commencing with quarter-grain doses, will be found a useful remedy. In insanity complicated with dysmenorrhoea, the combination of camphor with hyoscyamus, opium, or conium may be given with great advantage. The hydrochlorate of morphia, in union with dilute hydrochloric acid, is said to be useful in cases where the sedative treatment is desirable. I am often in the habit of exhibiting sedatives and tonics in a state of combination, particularly conium with iron, opium with quinine, or with the infusion or compound decoction of cinchona. In debility, with irritability of the nervous system, accompanied by restlessness, Battley's solution, with the preparations of cinchona, will often prove of great benefit. The tincture of sumbul I have occasionally administered, and I think with advantage, in paroxysmal or convulsive forms of insanity. I have given to the extent of one to two drachms for a dose. In hysterical derangement, the tincture of Indian hemp will occasionally allay the excitement, and produce sleep more rapidly than any other form of sedative. The valerianate of zinc has not answered the expectations of those who have spoken so highly of its medicinal virtues. Tincture of opium with camphor, and the tartrate of antimony, is an excellent combination in cases of doubtful cerebral congestion. Tincture of hops in doses of from one to four drachms, it will be necessary to give when no other formulæ are admissible. As a mild form of sedative, compound ipecacuanha powder is occasionally recommended; but a good substitute for Dover's powder is a pill composed of opium, ipecacuanha, and soap.

"In treating the more chronic forms of insanity, particularly melancholia, it will be essential to bear in mind that they are difficult of cure, because, owing to the slow, obscure, and insidious character of the disease, the mental affection has been of some duration before the attention of the practitioner has been directed to its existence. As this form of derangement generally exhibits itself in trifling perversions of the affections and propensities, leading to little acts of extravagance and irregularity of conduct, associated with great depression, we often find the attack has existed some years before a necessity is felt for any medical advice or treatment—perhaps a suicidal propensity has manifested itself, this being the first apparent overt act of the insanity.

"It is necessary, before suggesting any course of treatment in melancholia, to ascertain whether any latent visceral disease be present. Occasionally, the local irritation will be found either in the liver, the stomach, and bowels, and in women the uterine functions are frequently disordered. In the religious and other forms of melancholia in females, the delusive ideas are often associated with uterine irritation; and under such circumstances, if actual physical derangement of an active character exists in this organ, the best treatment will be, the application of leeches to the neighbourhood of the uterus, combined with warm hip-baths, sedatives, and mineral tonics. In cases of melancholia, the digestive functions are often much vitiated, the circulation languid, the skin cold and flaccid, and these symptoms being conjoined with a general loss of physical tone. Such patients require generous diet, good air, gentle exercise, and occasional stimuli. When dyspeptic symptoms are combined with an inactive state of the bowels, I have often administered the compound tincture of guaiacum with great benefit. It is important to watch the particular features in these cases, and to improve the general health by the exhibition of mild alteratives and vegetable tonics, with alkalies. I have occasionally administered, with success, in this form of insanity, apparently associated with an abnormal condition of the nutrition of the brain, cod-liver oil, with preparations of iron.

"My time will not admit of my submitting for your approval the treatment best adapted for those forms of mental disease associated with an atrophied or softened condition of the nervous matter. I think more is to be done for the cure of these cases than the writings of medical men would lead the student to suppose, particularly if the disease be seen and subjected to treatment in the early stages. I have recorded the details of several instances of cerebral disease, exhibiting all the legitimate features of ramollissement, and yielding to the persevering administration of the preparations of iron, phosphorus, zinc, and strychnia, combined with generous living, and the occasional application of a leech behind the ear, should indications of cerebral congestion be present.* I have also derived benefit in these cases from the use of the milder forms of mercurials, associated with cinchona. In cases of impairment of the mind, loss of memory, defective power of attention, occasional paroxysms of mental paralysis, unconnected with lesions of the motor power, I have found a solution of the acetate of strychnine, and a solution of the phosphate of strychnine, of great advantage.

"In some chronic forms of insanity, in dementia, and persistent monomania, connected, as it was supposed, with morbid thickening of the dura mater, and with interstitial infiltration of the membrane, as well as with exudations upon its surface, I have occasionally had the head shaved, and have perseveringly rubbed over the scalp a strong ointment of the iodide of potassium combined with strychnine. In other instances I have kept the head painted with the mixture of iodine. I have seen marked benefit from this mode of treatment. In several cases where the mental symptoms were supposed to be associated with effusions of serum, I have ordered the iodine to be applied externally, at the same time exhibiting minute doses of calomel, or mercury with chalk, to slightly affect the system: this, conjoined with occasional tonics, diuretics, and stimuli to support the vital powers and enable the patient to undergo this

* In 1880, twenty-two years ago, my first observations on "Ramollissement of the Brain" were published in *The Lancet*.

treatment, is occasionally productive of considerable benefit, in cases apparently placed quite beyond the reach of improvement or cure.

"I have only briefly spoken of two distressing and often unmanageable forms of insanity—viz., of suicidal mania, and of those cases where the patient obstinately refuses to take either food or medicine. In insanity associated with suicidal tendencies, it will be important to ascertain whether any cerebral congestion exist, as such is often the case. A few leeches applied to the head, followed by an active cathartic, will relieve the local irritation, and often dissipate the idea of self-destruction. In the absence of any positive active cerebral symptoms, the prolonged hot bath, and the persevering exhibition of some form of sedative, is the best treatment to be adopted. I have seen the suicidal impulse removed after the administration of a few doses of belladonna; but the meconite and hydrochlorate of morphia, if given for a sufficient length of time, will, in the great majority of cases, distinct from actual incurable visceral or cerebral disease, effect a cure. Occasionally, the shower-bath and counter-irritation in the vicinity of the head, will aid us in re-establishing health. Cases sometimes present themselves where the patient determinately refuses to take either food or medicine. This character of case gives those who have the care of the insane much anxiety. The refusal of food may be connected with the determination to destroy life, or it may be associated with delusive impressions. I am inclined to believe that in the majority of these cases the symptom is the result of some local mischief remote from the brain, and sympathetically affecting the organ of thought. Upon examination we often find, in these cases, great gastric derangement, obstinate constipation, considerable tenderness upon pressure in the epigastric region, hepatic disease, the tongue foul, breath offensive, and other symptoms of derangement of the chylipoietic viscera. The determination to resist nourishment arises, under such circumstances, from a *positive loathing of food—a want of all inclination for it*. I have seen cases of this description, where it has been deemed necessary, in order to prolong life, to introduce food forcibly into the stomach, speedily cured by the adoption of means for improving the state of the general health and digestive organs. Mild alteratives, vegetable tonics, blisters over the region of the stomach, if the patient complain of pain in that region upon pressure, the warm and shower bath, is the most successful treatment to adopt in cases connected with obvious visceral derangement. Instances sometimes occur, where the refusal of food is clearly traceable to a delusive impression—an hallucination of taste, which makes everything appear to the patient bitter, disgusting, and poisonous. The unhappy patient imagines that he is commanded, either by good or evil spirits, not to eat. These unhappy persons must be treated upon general principles, and the remedies be adapted to the peculiar character of each individual case. Under such hallucinations of taste, patients often swallow the most extraordinary articles. The case of a lunatic is recorded who imagined that his stomach required to be strengthened with iron. He was seized with inflammation of the œsophagus, of which he nearly died. He then confessed that he had swallowed the blade of a knife. After his death, there were found in his stomach seven oxidated lath nails, each two inches and a half long; thirty-three nails, two inches long; forty-nine smaller iron nails and rivets; three pieces of wound-up iron wire; an iron screw, an inch long; a brass image of a saint; part of the blade of a knife; and other articles; amounting in number to 100, and weighing about twenty ounces. It will be necessary, in cases like those to which I have been referring, to ascertain whether the determination not to eat is the effect of such perversions or hallucinations of taste.

"The time will only admit of my alluding generally to the importance, as a principle of treatment, of the administration of tonic remedies, active exercise in the open air, and to good and generous living. It is rarely necessary, in the treatment of insanity, to deprive the patient of animal food. Individual cases occasionally come under our notice, in which it is necessary, for a time, to enforce a farinaceous diet; but such is not often our duty. Among paupers, insanity is frequently cured by the free use of good animal food, and a generous supply of porter. Even when we are satisfied of the necessity of local

depletion, it will often be necessary to give wine, and allow the patient a generous diet.

"There are many other essential points in connection with this important, this vast subject, which I am reluctantly compelled to pass entirely over. When I had resolved to bring this matter before the profession, I quite despaired, in the time allotted for one lecture, of being able to skim even upon the surface of the many deeply interesting points involved in the inquiry; but feeling—deeply, earnestly feeling—that, in relation to my own speciality, the subject of the medical treatment of insanity was of the first moment, of the most vital importance, to the profession as well as to the public, I did not hesitate in selecting this topic for one of my lectures, feeling assured that you would kindly make allowance for all imperfections, and generously appreciate the difficulties I had to encounter in concentrating in one short lecture a faint glimpse or shadow of a subject requiring for its successful exposition nine or ten lectures, equal in length to the one I have had the honour of reading this evening. I may have formed an extravagant and exaggerated conception of this subject, but I cannot close my eyes to the fatal consequences which have so often ensued from a belief in the incurability of insanity by medical means. In all grades of society, we witness the pernicious, the fatal, the disastrous effects of this dogma. We see it influencing the conduct of county magistrates in the architectural proportions, medical organization, and general arrangements of our great national asylums. We also perceive the consequences of the error operating in many of the private institutions for the treatment of the insane. Alas! are we not compelled to confess, that many asylums for the insane constitute mere places of detention—model prisons—and not what government ought to insist upon making them—HOSPITALS FOR THE CURE OF THE INSANE, under the government of medical officers, well trained, by preliminary education, for their important vocation, acquainted with the philosophy of the human mind, and fitted by the character of their *heart*, as well as by their *intellect*, for the right performance of the solemn and responsible duties intrusted to them by the public and the legislature?"—*Lancet*, Oct. 16, 1852.

27. *New Researches on the Curability of Softening of the Brain.*—Dr. DURAND-FARDEL observes that recovery from cerebral hemorrhage, and from softening of the brain are well-ascertained facts. There is, however, a difference in the progress of the two diseases. In hemorrhage, if the effused blood does not soon destroy life, cure or reparation commences by the absorption of the blood, the formation of a membrane, etc. The disease has attained its greatest development, and begins to diminish. The tendency of softening, on the other hand, is at first to increase; and its cure or decrease is only after a succession of changes, of which hemorrhage offers no examples. Softening sometimes, indeed, stimulates the rapid development and the decreasing progress of hemorrhage; but this is due to the general congestion which often at first accompanies it.

When softening has passed into the chronic stage, the symptoms which attend it are connected, as in hemorrhage, with destruction of a portion of the cerebral fibres—due in one case to sudden laceration, and in the other to gradual disorganization.

Dr. Durand-Fardel relates several cases, which lead him to the following conclusions:—

Cerebral softening, when arrived at the chronic stage, may undergo cure like hemorrhagic effusion—by a process of limitation and absorption of the softened matter, analogous to the absorption of a clot. But this absorption, which at last produces ulcerations of the surface of the brain and cavities, or large losses of substance in the interior of the organ, succeeds to transformations, of which the most important are, *yellow patches* on the surface of the brain, and *cellular infiltrations* in the medullary substance.

With regard to the symptoms, patients have during life presented symptoms of severe disease, from which they have entirely recovered, or of which they have retained traces exactly similar to those which attend the cicatrization of hemorrhagic clots. On *post-mortem* examination, we find softening, which

sometimes seems to have remained stationary for a longer or shorter period, sometimes is transformed, and presents marks of reparation or cicatrization. Sometimes, again, the nature of the anatomical change is confirmed by the symptoms; sometimes, the origin of the symptoms is proved by the nature of the change.

The cases in which life has continued for years with slight paralysis, as if from a cured hemorrhagic clot, or those in which all symptoms have disappeared after an uncertain period, prove, whatever be the character of the lesions subsequently found, that cerebral softening has not that fatal progress which is commonly attributed to it; that the prognosis usually formed ought to be modified; that, in an individual affected with cerebral softening, the symptoms may entirely disappear, or, more frequently, diminish and become limited.

The author, in concluding, acknowledges that he is not the first who has pointed out the possibility of recovery from cerebral softening: this has already been done by Andral, Cruveilhier, Lallemand, Carswell, and Dechambre.—*Lond. Journ. Med.* Sept. 1852, from *Arch. Gén. de Méd.* 1852.

28. *Eruptive Fevers*.—Prof. BENNETT, in a clinical lecture (*Monthly Journ. Med. Sci.* Oct. 1852), remarks: "There are certain diseases which, in an arbitrary classification, may be considered as febrile eruptions, or as eruptive fevers. They comprehend especially scarlatina, erysipelas, variola, and rubeola. Occasionally roseola, herpes, or other cutaneous eruptions may be attended with fever, but they are separated from the others by their non-contagious or infectious nature. Plague and glanders, on the other hand, are true eruptive fevers; and, with the others mentioned, obey certain laws, which may be shortly noticed.

"1. They may be infectious and contagious. By infection, is understood the power of being propagated through the inhalation of air tainted by the breath or perspiration of the affected person. By contagion, is understood communication by actual contact.

"2. The present theory, with regard to the cause of these diseases, is, that it depends upon a morbid poison, a small quantity of which entering the blood produces in that fluid a peculiar change which is analogous to that of fermentation. To distinguish this change in animal from what occurs in vegetable fluids, the term *zymosis* has been introduced by Mr. Farr (from ζύμωσις, to ferment).

"3. Some of these animal poisons, if excluded from the air or carefully dried, will retain their communicating property for a longer or shorter time. This enables us to preserve matter for artificial inoculation. Hence also they have been supposed capable of attaching themselves to fomites—that is, substances of a rough surface or downy texture, such as wool, cotton, wearing apparel, dust, etc. It is on this theory that quarantine regulations are founded, the whole of which, together with the facts, real or supposed, that support them, require a thorough revision.

"4. All the animal poisons are distinguished by peculiarities in their mode of incubation and development. Thus a period of latency exists between exposure to the poison and accession of the fever, or first rigor. Again, the eruption appears at different periods after the fever is declared. Thus—

	Period of latency from	Appears after first rigor in from
Scarlatina,	4 to 8 days . . .	18 to 24 hours.
Erysipelas,	4 to 7 days . . .	24 to 60 hours.
Variola,	8 to 14 days . . .	48 hours.
Rubeola,	7 or 8 days . . .	72 hours.

"5. All the eruptive fevers, strictly so-called, invariably run a natural course, and cannot be cut short. It follows that—

"6. The treatment of febrile eruptions has for its object conducting these cases to a favourable termination. To this end exactly the same general rules are to

be followed as I previously gave when speaking of continued fever, and the same indications exist for the use of salines and laxatives, cold to the head, wine and stimulants, and regulation of the diet."

29. *Scarlatina*.—Prof. BENNETT, in a clinical lecture (*Monthly Journ. Med. Sci.* Oct. 1852), after relating three cases of this disease, remarks: "Of all the eruptive fevers, scarlatina is the most rapid in its invasion, and the most simple in its course. Great watchfulness is therefore demanded on the part of the practitioner, especially when the crisis is to be expected, so that if the pulse falters, and prostration comes on rapidly, he may be prepared to meet it. Perhaps, also, scarlatina is the most infectious of the eruptive fevers, so that complete separation of the patient from the other members of a young family is at all times to be insisted on as soon as possible.

"A chief peculiarity of scarlatina is, that, in addition to the general fever and characteristic eruption, the tonsils and mucous membrane of the mouth and pharynx are also inflamed. This occasions difficulty of deglutition, with soreness of the throat, symptoms which require for relief topical remedies—such as leeches, fomentations, astringent and slightly acid gargles, or a linctus, etc. If sloughing or ulceration occur, the application of the stronger acids, or the nitrate of silver, is often necessary. The difficulty of deglutition sometimes impedes the introduction of food into the stomach, and in this way assists in producing prostration, and prevents the administration of stimulants or medicine. It may also, in severe cases, impede respiration, and assist in producing asphyxia directly. A fatal result, however, when it does occur during the primary attack of scarlatina, is generally dependent on the same causes which induce it in typhus fever—namely, congestion of the brain, as indicated by delirium, passing into coma, and followed by prostration of the vital powers. In addition to the throat complication, there are various others, all of which may require a special treatment. In the vast majority of cases, however, a general treatment, directed in the first place to subduing the excess of fever, and afterwards to supporting the strength, is indicated.

"Many efforts have been made by different practitioners to check or modify the intensity of the disease by administering various drugs, or carrying out particular kinds of treatment. Hence, during certain epidemics, or in its visitations to particular educational institutions, various practitioners have been sanguine enough to believe that their especial mode of practice has been more successful than any other. I do not consider it necessary to direct your attention to the numerous plans which have been thus proposed, because all of them have been only partial in their operation, and no one of them has been more successful than another. You must remember that the causes of scarlatina are as mysterious and unknown as are those producing every kind of fever; and that its fatality, like that of fever, is to be traced to constitutional circumstances in individuals, to unhealthy localities, or to the so-called type of the particular epidemic. Nothing, therefore, is more difficult under such circumstances than to judge whether the non-fatality observed at one time, or in a certain establishment, is referable to this or that practice. At all events, I have been unable to satisfy myself that any general rule of empirical or rational practice is to be derived from the contradictory accounts which have from time to time been made public on this subject.

"The most recent system of treatment which has been brought forward is that recommended by Dr. Andrew Wood; and I notice it in deference to the great experience that gentleman has acquired from his position as physician to Heriot's Hospital and other educational establishments in this city, which have been attacked by numerous epidemics of the disease. He considers that the most efficient and safe method of treatment consists in acting powerfully on the skin, with a view of thereby assisting nature to eliminate the scarlatinal poison from the system. As ordinary diaphoretics frequently fail, he has recourse to the following method: Several common beer bottles, containing very hot water, are placed in long worsted stockings, or long narrow flannel bags, wrung out of water as hot as can be borne. These are to be laid along side the

patient, but not in contact with the skin. One on each side, and one between the legs, will generally be sufficient; but more may be used if deemed necessary. The patient is to lie between the blankets (the head of course being outside) during the application of the bottles, and for several hours afterwards. In the course of from ten minutes to half an hour, the patient is thrown into a most profuse perspiration, when the stockings may be removed. In mild cases, the effect is easily kept up by means of draughts of cold water, and if necessary, by the use of two drachm-doses of *sp. mindereri* every two hours. In severe cases, where the pulse is very rapid—the beats running into each other—where the eruption is either absent or only partial, or of a dusky purplish hue—where the surface is cold—where there is sickness or tendency to diarrhoea—where the throat is aphthous or ulcerated, and the cervical glands swollen, then he follows up the use of the vapour-bath by four or five grain doses of carbonate of ammonia, repeated every three or four hours. Should this be vomited, then brandy may be given in doses proportioned to the age of the patients. Carbonate of ammonia he considers to act beneficially: 1st, by supporting the powers of life; 2d, by assisting the development of the eruption; and 3d, by acting on the skin and kidneys. Where the vapour-bath was used early in the disease, and its use continued daily, or even twice or thrice a day, according to circumstances, he has found that the chance of severe sore throat was greatly obviated. In regard to supervening dropsy, he considers that, by the use of the vapour-bath, with the other necessary precautions as to exposure, diet, etc., its recurrence is rendered much more rare. In the treatment of the dropsical cases, it was also very useful, and even might be trusted to entirely in some cases. Dr. Wood also condemns all depleting treatment, and even purgatives, during the first ten days, as not only not required, but positively dangerous, as tending to interfere with the development of the eruption. In the later stages, as well as in the dropsy, however, he thinks purgatives are often beneficial.

“The general plan of this treatment appears to be so far rational that its object is to hurry forward the disease by applying damp heat to the skin, and by thus assisting nature to make her operations more perfect than they might otherwise be. In other words, by rendering the febrile eruption more complete, diminish the risk of its leaving behind it a tendency to subsequent disease. Whether this plan as a whole will, in practice, prove more extensively beneficial than any other, can only be determined by an extensive trial and careful comparison of the results. I propose, however, to try it in the next case which enters the wards.”

The Professor subsequently tried this plan of treatment, and offers the following observations in regard to it: “On the first occasion the vapour-bath produced little effect, but on the second copious diaphoresis was induced. Yet it so happens that the disease, instead of being shortened or rendered milder, was unusually prolonged, and was followed by rheumatism, dropsy of the inferior extremities, and by pericardial effusion. The febrile symptoms terminated by critical depositions in the urine so late as the fifty-second day. Although admitted June 29, she was not strong enough to be dismissed from the infirmary until September 7th. This was certainly an unfortunate case to commence the trial of a new treatment with; and yet observe, the girl had been always healthy, and there was nothing to indicate at the commencement that the sequelæ would be so severe or so prolonged. It would be absurd, however, to suppose that we can test the value of any kind of treatment by one case. I only give you the facts as I find them. I shall certainly continue the practice until I am satisfied either that it is really beneficial; or, on the other hand, no better than the simple treatment formerly pursued.

“It has frequently been observed, that the urine in scarlatina, especially when dropsy supervenes, becomes albuminous. Dr. James W. Begbie, who has tested the urine in a considerable number of cases of this disease, considers its presence almost uniform. Aware of what he has written on this subject, I gave directions to the clinical clerk to test the urine daily, which was done during the whole time the patient was in the house. The result was, that on no one single occasion was the urine in the slightest degree albuminous. Even on the

day when a slight deposit appeared, which was made up of casts and epithelium of the tubes, the report says, 'No albumen in the urine when tested by heat and nitric acid.' This coagulability of the urine, as well as various deposits which appear in it on critical days, must be considered as an evidence of the excretion of the morbid products which have circulated in the blood. Hence it is common, not only in scarlatina, but in all inflammatory affections, as well as fevers. This point you must have seen me very observant of in watching for the resolution of inflammations and fever at the bedside. For the theory of its occurrence, I must refer you to my 'Treatise on Inflammation,' p. 65, and to a former lecture on 'Exudation.'—[See this Journal for Oct. 1850, p. 479.] It sometimes happens, however, that the critical discharge is comparatively slight, and that the organic elements are not dissolved so as to constitute fluid albumen. This appears to have occurred in the present case, for whilst morphological evidence of the crisis existed in the urine, in the form of cells and casts, it is distinctly stated no albumen could be detected by heat and nitric acid. Yet the girl's convalescence commenced from that day."

30. On an Epidemic "*Suette Miliare*," in the *Hérault*.—A paper on this subject, by Dr. SWAINE, was read at the first meeting of the third session of the Epidemiological Society, of which the following is an abstract:—

Dr. Swaine begins by defining *suette miliare* as an epidemic fever of a remittent type and a typhoid form, attended by profuse sweating, and for the most part with an extensive eruption of miliary vesicles. Dr. Swaine stated that he believed that the disease, in its present form, had been known on the Continent before the commencement of the eighteenth century, and accurately described by Bellot during the fourth decennium of last century. It had recurred, from time to time, in various parts of France, always selecting damp, poverty-stricken, and ill-drained localities for its visitation. In 1821, the centre of France became a prey to its ravages, and that patient and acute observer, M. Rayer, was then commissioned by his government to investigate and report upon the disease. This report was most comprehensive and most welcome. Unfortunately, however, it appeared under the banner of Broussais-isme, which deprives it of a portion of its value at the present day. It was not until 1851, that the *Hérault* became visited with this pestilence. It first broke out in a village situate on the declivity of a hill, sheltered by mountains, more or less elevated, from all but the south wind, which reaches it with the malaria of a marsh district on its wings. The village is dirty and viciously drained, the refuse of many small distilleries contributing to its insalubrity. The inhabitants are poor and prejudiced. Here the disease appeared spontaneously in the early spring. Many were attacked, and a few died. To the east of this village rises a lofty volcanic plateau, twelve miles long and two broad. Over this range the disease seemed to make a leap, attacking, secondly, with great and deadly violence, a village lying at the other extremity of the plateau. Although without any regular order in its march, the epidemic afterwards attacked, in succession, all the villages and towns situated around the base of the said plateau (*les Causes*), and in fact seemed to confine itself almost entirely to one hydrographic basin, the bed of the River *Hérault* and of certain of its tributaries. No facts are recorded which render it very probable that the disease is propagated by contagion. It is, however, stated that it sometimes passed from village to village, in the teeth of the prevailing winds. The people, however, and even the rural practitioners, mostly believed in contagion, and it required nothing less than a scenic display on the part of a government commissioner to reassure the panic-stricken inhabitants of the affected district on this point. The etiology of the disease remains obscure. A specific telluric influence must be supposed to be superadded to the general miasmatic tendency of the affected communes. The epidemic generally sets in in early spring, when the peasantry, male and female, are engaged in laborious field-work under a broiling sun, and often with a piercing wind blowing upon them from the snow mountains of the *Cevennes*; whilst the sweating method of treatment is at all times, and for the cure of nearly all diseases, carried to its utmost limits. The

nature of the disease is, if possible, still more obscure. French physicians have uniformly applied the pathological theories current in their own day to the explanation of this disease. Dr. Swaine felt more inclined to adopt Prout's view of analogous fevers attended with profuse sweating—namely, that an excessive quantity of lactic acid is generated within the system and excreted by diaphoresis. The almost exclusively vegetable and milk diet of the peasantry in the Hérault, seems to Dr. Swaine to favour this assumption; and he thinks that in the so-termed malignant cases, the excess of lactic acid in the circulation may be so great as to overwhelm the nervous centres. An account is then given of the disease itself, which differs from other typhoid fevers chiefly in this, that an enormous amount of sour fluid is poured off from the skin, and that in many instances—not in all—a miliary eruption appears after a few days of these profuse sweats. It is important, however, to observe, that neither the fever nor the course of the disease is at all modified by this efflorescence. The distinction of two forms of the disease seems to Dr. Swaine simply convenient, but not founded in any real difference except in degree. Mild cases of the disease often become suddenly and very unexpectedly malignant, and the patient dies comatose or convulsed, in spite of every variety of treatment. Other cases show this intensity from the first, and a few days, or even hours, decide them in a fatal sense. *Post-mortem* examinations throw no light upon these cases, beyond establishing plethora of the venous system, and a generally diffuent and black condition of the blood. In 1821, Rayer and others practised the antiphlogistic treatment to its full extent. At the present day, immense doses of quinine are given, larger in proportion as the disease is intense. The proportion of deaths seems to be pretty equal under these two opposite poles of indication, and it is hard to suppress a smile at the zeal and confidence with which such different methods are advocated by their respective adherents. Of the statistics of the Hérault epidemic little is as yet known. Dr. Swaine concluded his paper with a brief parallel between the *suetie miliare* of this and the last century, and the English sweating sickness of the Middle Ages. Dr. Swaine dissents from the opinion of Hecker, who regards the two diseases as essentially different, and himself considers that there is enough analogy between the two to justify us in classifying them together, admitting only that greater degree of intensity in the earlier disease, which might well be accounted for by the differential character of the two races, of their respective habits and customs, and especially by the different age of civilization under which the English sweating sickness occurred.

31. *A Comparative View of some of the more Important Points of the Pathology of Rheumatic and Non-Rheumatic Pericarditis, deduced from an Analysis of Cases.*—Dr. ORMEROD read an interesting paper on this subject before the Royal Medical and Chirurgical Society, November 9, 1852. He commenced by a reference to the researches of the late Dr. Taylor, who had satisfactorily shown that acute rheumatism was not exclusively the cause of pericarditis, and who had also called attention to the importance of granular disease of the kidney in reference to this morbid condition. The author desired to limit the use of the word pericarditis to present inflammation of the pericardium; and this analysis referred exclusively to cases of this nature. The means of investigation comprehended complete records of 1410 cases observed under nearly similar circumstances; that is, in the wards of different hospitals. Of these, 1249=88.59 per cent. were not cases of rheumatism; 161=11.41 per cent. were admitted on account of rheumatism, or suffered from it while under observation. Of the whole number, 85=6 per cent. had recent pericarditis, observed during life, or discovered after death, and were thus distributed:—

24 = 1.92 per cent. occurred among	1249 non-rheumatic cases.
61 = 37.88 per cent.	“ 161 rheumatic cases.
85 = 6 per cent.	1410

The mean age of 61 subjects of rheumatic pericarditis was about 21; the mean

age of 24 subjects of non-rheumatic pericarditis was 42; the extremes being 7 and 63 years. As to the different causes of the pericarditis:—

Rheumatic,	61 cases coincided with acute rheumatism.
Non-rheumatic, of local origin,	{ 7 ensued on inflammation of lungs or pleura.
	{ 2 " malignant disease of the pericardium.
	{ 1 " old cardiac disease.
Non-rheumatic, of constitutional origin,	{ 6 coincided with granular disease of the kidney.
	{ 4 " hemorrhage or exhaustion.
	{ 2 " scarlatina or erysipelas respectively.
	{ 2 were inexplicable.
<hr/> 85	

The date of the accession of pericarditis was determined in 33 of the rheumatic cases. The mean of these observations gave the 10.5th day of the rheumatic attack as that on which the pericardial complication most commonly supervened. The question, whether a first or second attack of rheumatism was more likely to be accompanied by pericarditis, was beyond the reach of hospital statistics. This source of information was silent also on the question, whether pericarditis be more likely to occur in severe or in the slighter cases of rheumatic fever. It might, however, be safely inferred, that the severity of the articular and pericardial affections bore no very close relationship to each other. It was certain that the most severe, even fatal pericarditis, might occur where there was but faint evidence of articular affection, and this latter condition might exist in the most aggravated and intense form without involving the addition of pericarditis to the other sources of distress. The author then entered upon the consideration of the subject of non-rheumatic pericarditis of local origin; and a question of importance here presented itself: What was the influence of pre-existent cardiac or pulmonary affections in inducing inflammation of the pericardium? The question was of equal importance in relation to acute rheumatism. The relation of pulmonary inflammation to pericarditis was thus illustrated. In the 1410 cases, the basis of this inquiry, some form of pulmonary inflammation—that is, pneumonia, pleuritis, or pleuro-pneumonia—was ascertained to exist, either by auscultation or dissection, in 265 cases. Of these,

117 had pneumonia,	of which 19 had recent pericarditis.
86 had pleurisy,	" 6 "
62 had pleuro-pneumonia,	" 8 "

265

33 = 12.4 per cent.

In the rheumatic class, pericardial inflammation commonly preceded, yet sometimes, though rarely, followed pulmonary inflammation. The non-rheumatic class told quite a different story: here pulmonary inflammation had apparently a distinct influence in inducing pericarditis, and this influence was most evident in cases of pleurisy; and clinical observation bore out the conclusion that the pericarditis was subsequent to, and probably contingent on the pulmonary inflammation. The author then referred to the comparative fatality of non-rheumatic compared with rheumatic pericarditis, and also to the desirableness of instituting an exact comparison between Bright's disease of the kidney and acute rheumatism, in respect to their tendencies to induce inflammation of the pericardium. In conclusion, the author desired to ascertain how far the results obtained by his present analysis agreed with those of the published cases of Dr. Taylor, who had made the subject of non-rheumatic pericarditis so peculiarly his own. The deductions seemed identical, and one rose from the perusal of those elaborate clinical reports with a conviction that non-rheumatic pericarditis was more within the province of the anatomist than the physician. It was a disease with few or no symptoms, its physical signs were recognized more often by a chance discovery than on the suggestions of the disease, and its morbid changes small in amount and apparently inactive; and, where opportunity had occurred of watching the disease some time previous to death, it had been apparently without effect on the general symptoms, its presence or absence being

determined by the ear alone; and still, in these, its connection with the fatal termination had appeared to be that of a coincidence rather than of a cause.

Dr. Mayo concurred with the author in many of his views; but thought that the statement of non-rheumatic pericarditis being on the whole unproductive of fatal results should be received with caution. Severe diseases, which terminated rapidly in death, were sometimes attended with such slight indications of their presence as altogether to escape observation. He remembered a case strikingly illustrative of this fact. A man was brought into the Marylebone Infirmary, having suffered an apoplectic seizure. Although the symptoms were not severe, in a short time he died. After death, both lungs were found in a state of gray consolidation, and presented evidences of severe and extensive pneumonia, which had given no indications of its existence during life. The morning previous to the fatal attack the man seemed to be only slightly unwell. A case had been related in the paper in which pericarditis attacked a maniacal patient; and he thought it was an interesting question to consider how far the disturbance of the nervous system, in this and similar instances, disordered the nutrition of the part, and became a cause of pericardial inflammation.

Dr. Fuller expressed his accordance with many of the opinions set forth in the paper. There were, however, certain points on which experience had led him to form conclusions different from Dr. Ormerod. It had been stated that, according to the author's observations, rheumatic pericarditis more frequently attended the second than the first attack of articular rheumatism. Now, the cases which had fallen under his own notice at St. George's Hospital led him to believe the reverse; these cases seemed to indicate very strongly that pericarditis most frequently accompanied the first attack of articular rheumatism. He quite agreed with the author that acute articular disease was by no means sure to be associated with pericarditis, for he had often seen severe acute rheumatism without any pericardial complication, and he thought inflammation of the pericardium should be regarded as merely one of the symptoms of acute rheumatism, as part of a general malady, which might or might not exhibit itself, and was not at all certain to do so in the most severe cases. With reference to the association of inflammations in important organs with pericarditis, out of 27 cases treated by him, pneumonia showed itself in 18, and pleurisy or acute bronchitis in 21. He felt, at present, however, unable to declare in what degree the occurrence of such complications contributed to produce death.

Dr. Heale could bear testimony to the extremely slight symptoms that sometimes attended severe morbid conditions. He was summoned to an athletic, hearty-looking man, who had died with symptoms of tetanus. At the *post mortem*, one lung was consolidated throughout from the effects of pneumonia; the other was highly congested, and a strangulated inguinal hernia existed, including a portion of sphacelated intestine. He was unable to ascertain that any alarming symptoms had manifested themselves during life.

Dr. Copland thought the author was entitled to the highest praise for having in his paper classified and grouped together the inflammations of various organs, regarding them not as simple manifestations, but as dependent on a general affection of the blood. A morbid condition of the blood diffusing itself throughout the system, exhibited itself at various points; but in general one diseased action would predominate, and mask the others. Inflammation of serous surfaces was a concomitant of Bright's disease, and such inflammation clearly arose from retention in the blood of certain deleterious principles, in consequence of the organ appointed for their elimination being unable to discharge its functions. It was of the utmost importance to look upon diseases not merely as local manifestations, but as the associated exhibitions of a morbid condition diffused throughout the system.—*Med. Times and Gaz.* Nov. 20, 1852.

32. *Recent Researches on Hæmatology.* By MM. BEQUEREL and RODIER.—The following are the conclusions derived from recent researches:—

1. In most chronic diseases, or rather as a result of various modifications in health, the three principal elements of the blood—globules, albumen, and fibrine, may be diminished or increased, singly or in combination. The associations depend on the nature of the diseases.

2. The amount of globules is diminished in the course of most chronic diseases of long duration, especially in organic diseases of the heart, in chronic Bright's disease, chlorosis, marsh cachexia, hemorrhages, excessive sanguineous discharges, fluxes, the last stage of tuberculization, and the cancerous diathesis: also, when the patient has had insufficient or innutritious food and insufficient air, damp and dark habitations, etc.

3. The albumen of the serum diminishes in Bright's disease, marsh cachexia, diseases of the heart in the third stage, extensive symptomatic anæmia, and the cancerous diathesis. The albumen is also diminished as a result of insufficient food.

4. The fibrine remains at its normal standard, and even rises above it, in acute scurvy; it is diminished in chronic scurvy, and in the scorbutic state symptomatic of some chronic diseases; and it is in diseases of the heart that this state is most frequent and best marked.

5. In all the preceding cases the quantity of water in the blood is increased much above the healthy standard.

6. The diminution in the amount of globules is shown chiefly by the following symptoms: loss of colour of the skin, palpitation, dyspnoea, blowing murmur with the first sound at the base of the heart, intermittent blowing murmur in the carotid arteries, continuous blowing murmur in the jugular veins.

7. The diminution in the proportion of albumen, even when inconsiderable, when it takes place rapidly, quickly produces dropsy. When the diminution is more chronic, dropsy is still produced; but the diminution of albumen must be greater than when it is acute. In general, dropsy is a symptomatic mark of the diminution of albumen.

8. The diminution of fibrine is shown by the production of cutaneous or mucous hemorrhages.

9. In the anemia symptomatic of excessive hemorrhage, of insufficient food, and of profuse fluxes, the change in the blood is characterized by low specific gravity, increase of water, diminution of globules, the albumen being of its normal quantity or sometimes slightly diminished, and the fibrine in healthy amount.

10. In chlorosis, which is an affection quite distinct from anæmia, changes in the blood may be entirely wanting. When present, they consist in increase of the water, diminution of the globules, and the retention of the healthy quantity, or increase, of the albumen and fibrine.

11. In acute Bright's disease, the quantity of globules and fibrine is normal, while the albumen is diminished. In chronic Bright's disease, the globules and albumen are diminished, and sometimes the fibrine.

12. Most idiopathic dropsies are due to the diminution of albumen in the blood. They are acute or chronic, and generally have as their origin some destruction of the solid or liquid constituents of the organism.

13. In diseases of the heart, the blood is changed in proportion as the fatal termination approaches. The changes consist in the simultaneous diminution of the globules, albumen, and fibrine, and in the increase of the water.

14. In acute scurvy, the blood does not undergo any appreciable modification. In chronic scurvy, the fibrine is remarkably diminished in quantity, and sometimes the globules are much increased. In both forms, an increase in the proportion of soda would explain the facts, but it wants demonstration.

15. All these modifications exert a great influence on the medicinal treatment of various morbid conditions. Each element of the blood is modified by a special therapeutic method. The diminution in the quantity of globules is combated by chalybeates; that of albumen, by cinchona and nutritious diet; the diminution of fibrine and the increase of soda in the blood, by tonic regimen and the use of vegetable acids.—*Lond. Journ. Med.* Oct. 1852, from *Gazette Médicale de Paris*, July 31, 1852.

33. *Microscopic Examination of a Relaxed Uvula*.—Dr. T. INMAN records (*Med. Times and Gaz.* Sept. 4, 1852) the results of a microscopic examination of a portion of uvula excised from a gentleman who had had a severe cough for several weeks, which is interesting in a practical point of view.

On examining the uvula, during the attempt at deglutition, the upper part was seen to contract firmly, leaving the lower part perfectly smooth and unchanged. It seemed thickened, but of natural colour. The lower portion was excised, and the following was the result of an examination of the fragment:—

“It was very firm, almost fibrous in the interior, and covered with the ordinary mucous membrane, which was not hypertrophied. On making sections of the fibrous part, and tearing them up with needles, the structure was found to consist of groups of large cells, $\frac{1}{16}$ inch in diameter and studded with an immense number of granules. These were probably portions of enlarged and altered mucous glands, and were bound together by strong areolar tissue. Amongst these were interspersed numerous muscular fibres, arranged in bundles. They were $\frac{1}{16}$ inch in diameter, but had few of the ordinary characters of voluntary muscle. Very few were striated; all of them seemed to be composed of an outer membrane, and an inner substance closely resembling fibrine. It was homogeneous, yellow, divided irregularly into fragments by transverse divisions. All elasticity seemed to be gone. The majority of the fibres terminated in blunted points, as if they were undergoing absorption.

“From this it will be seen that relaxation of the uvula is not (in every case at least) dependent upon muscular debility only, and therefore to be cured by local stimuli, but that it is sometimes occasioned by an actual change of structure preventing contraction. The part so diseased acts as a constant dead weight, and increases the mischief by dragging down that portion which is still healthy. In this case, no other remedy but excision could have been of any use. This simple corollary may be deduced from the microscopic appearances, viz., whenever the lower portion of the uvula is quite motionless during deglutition, it is useless to attempt to cure it, except by removal.”

34. *Cirrhosis of the Liver*.—An interesting discussion took place at the meeting of the Edinburgh Physiological Society (July 27, 1852) relative to this pathological condition.

Dr. BENNETT said he had examined numerous specimens of cirrhosis, of the hob-nailed, granular, and nutmeg livers, with the greatest care, and it appeared to him that the lesion partially consisted of an increase of the fibrous, and diminution of the cell, elements of the organ. Dr. Haldane seemed to be of opinion that the former depended on an exudation which was subsequently converted into fibres, but Dr. Bennett had never been able to trace those transformations which are observed in an exudation undergoing fibrous transformation. Hence, he was induced to think that the growth was more analogous to that form of increased nutrition described as hypertrophy—that is to say, slow and insensible increase of texture closely resembling the augmentation of bulk which occurs in the growing animal. He was aware that a membrane surrounding the lobules of the human liver had not yet been demonstrated to exist, but its presence was to be inferred by analogy; and it was a question worthy of consideration, whether the increase of fibrous matter in cirrhosis did not constitute a proof of its being there. With regard to the diminution and atrophy of the cell elements in the liver, it might be asked, whether this was a primary lesion, or a secondary one, dependent upon the pressure and contraction of the surrounding fibres. It was very possible that both changes might occur together, but he ascribed the principal influence to the increase of the fibrous element. He had been further led to believe that the nutmeg liver was only an incipient stage of cirrhosis, indicative of the increased vascularity which preceded and accompanied the commencing process of the fibrous hypertrophy. Dr. Bennett also described a lesion which closely resembled the nutmeg liver, and was commonly confounded with it, in which atrophy of the lobules proceeded from without inwards, those cells in connection with the portal capillaries having undergone fatty degeneration, while those in connection with the hepatic system were still normal. This lesion, he thought, might be a peculiar form of fatty degeneration of the liver.

Dr. W. T. GAIRDNER said that he had examined, with great care, numerous instances of cirrhosis of the liver, and would state some of the results of his observations to the Society, although, in many respects, he considered the

pathology of the disease extremely obscure and unsatisfactory. In the first place, Dr. G. saw no good reason for assuming that a preliminary hypertrophy was an essential part of the pathology of cirrhosis. It was quite true that a hypertrophied liver might in certain cases be the starting-point of cirrhosis; but in other instances the disease appeared to be unattended by increase of volume, even in its earliest stages. This fact was calculated to throw doubt upon the commonly received pathology, which ascribed the atrophy of cirrhosis to the contraction of a new fibrous tissue, the result of a subacute inflammatory exudation, or *adhesive inflammation*, as it was called by Dr. Budd. Without affirming positively the nature of the process concerned in the production of cirrhosis of the liver, Dr. G. considered that the essential anatomical condition of the disease was, undoubtedly, the atrophy of the glandular structure; and that the hypertrophy, or *apparent* hypertrophy, of the fibrous element, was probably a result of the loss of due proportion between these two tissues. He had observed, in one instance, where the fibrous tissue around the granulations was in particularly large proportion, that it showed under the microscope an immense number of very peculiar nuclei, which were possibly the remains of the obliterated glandular cells. Dr. G. remarked that, according to his observations, there was no fixed relation between cirrhosis of the liver and any other primary form of disease of the organ. He had undoubtedly seen it apparently arising from the "nutmeg liver," as Dr. Bennett had observed; but not less frequently it was found apart from that condition and in connection with other morbid states, such as the pure fatty degeneration, or the waxy liver. In other cases, cirrhosis seemed to occur without any appreciable morbid condition of the remaining glandular tissue. As to the dependence of this lesion on obstruction of the biliary ducts or ultimate portal circulation, as asserted by Rokitsansky, Dr. G. said he had not been able to come to a decided conclusion on this subject. The investigation was very difficult, from the fact that injection of the cirrhotic liver was generally unsuccessful, and the separate anatomical elements, or the limits of the acini, could rarely be made out in specimens, even of the incipient stage of this lesion.—*Monthly Journ. Med. Sci.* Nov. 1852.

35. *On the Proportion of the Subjects bitten by Mad Animals, who become affected with Hydrophobia.*—M. RENAULT, Clinical Professor at the Veterinary School at Alfort, has recently presented to the Academy a valuable report, adverse to the claim again recently set up for the prophylactic power of mercurial inunction in hydrophobia. As this claim has been over and over again refuted, we should not have adverted to the subject, but for the valuable incidental matter introduced by the professor into his report. He observes, that before we can receive the numerous cases which have been published of the preservative power of mercurial salivation, it is necessary—1. That it should be placed beyond all doubt that the animal inflicting the bite was really mad; and that all the persons supposed to have been preserved have really been exposed to the infection. On examining the histories of these cases, however, such proof is quite defective, as in some of those related—e. g., by Ehrmann and Audry, the persons had not been bitten at all, but had merely lain or drank with those who had, or had wiped away their saliva.—2. Next, when persons have been really bitten, and the animal has been really mad, we must be satisfied that the poison has been deposited in the wound. But numbers of the persons referred to have been bitten through their clothes, and every one knows how small a proportion of such acquire hydrophobia, even when no treatment at all has been employed.—3. But even when the poison has been duly deposited in the wound, to admit the preservative power of the mercury, we must allow that all such persons would necessarily suffer from hydrophobia if left to themselves. Numbers of cases contradictory of this are, however, on record. But although all careful observers admit this, the *proportion* of such as escape has never been duly investigated; and the subject being one of the highest interest, M. Renault takes the opportunity of communicating the results of the investigations he has been conducting upon it at Alfort since 1828.

To prevent confusion, he arranges the cases he has collected in two cate-

gories. (A.) Cases of dogs or other animals accidentally bitten by others, either mad or supposed to be so, and sent by the police to Alfort, to remain under inspection. Of 224 dogs so brought, between 1827 and 1837, which continued under observation for more than two months, without undergoing treatment, 74, or nearly one-third, became mad, and 130, or two-thirds, exhibited no symptoms. It is evident, however, that these cases do not afford any measure of the activity of the virus; for the dog that caused the bite may not always have been mad, the bites could not always be verified, and the hair of the animal may have prevented the poison from penetrating.

(B.) For this reason, another series of facts is adduced. From 1830 to the present time, certain dogs known as really mad have been made to bite, at the Clinical School, other dogs or herbivora in portions of the surface of delicate structure and devoid of hair, or inoculation has been performed with some of their saliva, collected during the height of the paroxysm. Of 99 dogs, horses, and sheep, so treated, 67 became mad, and 32 continued under observation more than one hundred days without any symptom exhibiting itself. Thus, in this category, in which every circumstance favourable to infection was secured, no less than one-third of the animals escaped, without undergoing any treatment whatever.

Examining the experience of other clinical professors, M. Renault says, that Professor Rey, of Lyons, has found that among animals who were accidentally bitten in the streets, and then placed under *surveillance*, 1 to 5 of the dogs, and 1 to 4 of the horses, became mad. Of those bitten or inoculated experimentally, 2 to 3 became mad. Of 16 animals accidentally bitten at Toulouse, 5 became mad. Professor Hertwig, of Berlin, states, that of 137 dogs accidentally bitten, 16 only became mad, 121 remained uninjured; while of 25 experimentally infected, 10 became mad and 15 did not. Thus, in both the categories, the proportion affected was sensibly less in Berlin than in France, whether this be owing to climate or other cause.

Thus, taking things at the worst, it results from these observations, made at different epochs, that two-thirds of the animals accidentally bitten, and one-third of those artificially infected, escape.

Still, it must not be supposed that these *mean results* of a great number of observations can be applied when speaking of the bite of a particular dog; for M. Renault has repeatedly observed, that while one dog, evidently mad, bites several others, and only one-sixth or one-seventh of these shall suffer, the virus conveyed from another dog, to all appearance in just the same condition, will infect nearly every animal (five-sixths or six-sevenths).

Moreover, it is generally believed that the bites of *mad wolves* are oftener followed by hydrophobia than are those of dogs. Of 254 examples of such bites, the histories of which M. Renault has been able to collect in authors, in 164, or nearly two-thirds, hydrophobia followed—the proportion for accidental bites by mad dogs being only one-third. Whether this depends upon the fact that in the wolf the rabies is oftener spontaneous, or upon the more remarkable one that this animal almost always bites its victim in the face, neck, or head, is uncertain.—*Brit. and For. Med.-Chirurg. Rev.* Oct. 1852, from *Bull. de l'Acad.* tom. xvii.

36. *Stomatitis Ulcerosa of Children*.—Dr. F. W. MACKENZIE, in an interesting article on this disease (*Lond. Journ. of Med.* Oct. 1852) says:—

“These diseases are almost peculiar to the period of infancy and childhood; and, as far as I have observed, occur principally in children who have been badly fed, are exposed to atmospheric vicissitudes, reside in unhealthy localities, or have been born of strumous or syphilitic parents. That it is essentially a constitutional affection, and not merely occasioned by bad air, endemic influences, or unwholesome food, is, I think, certain; for I have known it to occur in robust-looking children, who had been living in healthy, open situations, and well supplied with good nourishment, and all the necessities of life. In these cases, however, the disease was almost invariably found to have arisen from some local irritation, such as that of a carious tooth; and, when protracted, to be connected with some latent scrofulous taint; whereas, in other cases, it

will arise in the absence of any local cause, and, apparently, from nothing else than a very deteriorated condition of the health.

"In the general management of these cases, we are directed to employ, locally, strong solutions of the nitrate of silver, or of the sulphate of copper or zinc, with or without astringent, stimulating, or detergent gargles, and to administer, at the same time, quinine, tonics, and a liberal diet. I formerly followed these instructions closely, but sometimes with equivocal success; and I am now, after repeated trials, disposed to give the preference to the following method of treatment. It consists in removing, in the first place, any apparent cause of irritation, such as a decayed tooth, should it exist; and in applying, daily, the dilute nitric acid of the pharmacopœia, to the whole of the ulcerated surfaces, by means of a sponge, or camel's-hair pencil; whilst, at the same time, the sesquicarbonate of ammonia is given in full doses, combined with the citrate of iron. When the tongue is coated, and the alvine discharges are unhealthy, it is necessary to premise an emetic of ipecacuanha and squills, as well as a purgative of calomel and rhubarb. It is also necessary that the patient should be well supported by a nutritious diet, and an adequate allowance of malt liquor, or wine.

"I will briefly add, that the employment of ammonia in these cases was first suggested to me from observing its beneficial effects in the ulcerative affections of the mouth and throat, which occur in children in connection with scarlet fever. And, alone, it will accomplish a cure, as some of the following cases show, although less speedily than when combined with the citrate of iron and the local application of dilute nitric acid. The latter remedy appears to have a remarkable influence in improving the character of the ulceration and arresting its progress. The sloughy, dirty, yellowish appearance, which it generally presents, is soon changed for a florid, healthy, granulating surface; and this result would appear to depend upon the moderately-stimulating properties of the remedy, which are not disproportionate to the exhausted vital powers of the part."

37. *Removal of the Obstructing Mucus in the Suffocative Bronchitis of Infants.*

—In an instructive case which he relates, M. VALLEIX draws attention to the importance of mechanically clearing away the mucus from the throats of infants, in the suffocative paroxysms observed in the generalized bronchitis so fatal to young children. As soon as the child assumes a violaceous appearance, and suffocation seems imminent, the little finger should be passed along the back of the tongue. The child, closing its jaws, resists strongly, but the finger should be gradually advanced. When it reaches the isthmus, the child opens its mouth, and we should then pass on behind the epiglottis, so as to bring the pulp of the finger several times over the orifice of the larynx. This produces efforts at coughing and vomiting, and the mucus is expelled from the air-passages, a part being drawn out with the finger, and the rest swallowed. The child appears, after this little operation, much flushed and agitated, and almost suffocated; but it soon becomes calm, until renewed signs of asphyxia call for a repetition of the procedure. In the case which M. Valleix relates, apparent death, after one of these paroxysms, was successfully treated by artificial respiration, the employment of which he strongly recommends in similar cases.—*Brit. and For. Med.-Chirurg. Review*, Oct. 1852; from *L'Union Médicale*, No. 48.

38. *Treatment of Amenorrhœa.* By H. BENNETT, M.D.—"When the advent of the menstrual flux is retarded in well-developed young females, who evidently suffer, both generally and locally, from the delay, a little judicious management will often determine its appearance. The state of the health should first be carefully scrutinized, and any general or functional derangement remedied by proper treatment. If the patient is weak and delicate, the various preparations of iron, with a generous dietary, are often of great use. If, on the contrary, she is plethoric, and subject to headache and flushing of the face, a light diet, gentle exercise, and alterative or saline medicines are indicated. A young female suffering in this way is better at home, under the eye of a devoted and attentive mother, should she be fortunate enough to possess such a parent, than

in a public school, where the rigid discipline usually enforced renders it difficult to pay that attention to her state which it requires. Under the influence of these general means, the menstrual function usually manifests itself, and becomes regularized in the course of a few months. Should they prove inefficient, slight periodical stimulation of the uterine system should be resorted to. The plan I most frequently adopt is, the application of large mustard poultices to the breasts and inner and upper parts of the thighs, alternately, night and morning, during five or six days, every four weeks. The mustard poultices should be allowed to remain on until the skin reddens and begins to feel painful, but not long enough to blister it, as that would prevent their being replaced the following day. The feet may also be put in hot water night and morning, for a few minutes, and if there is any pain in the hypogastric or ovarian regions, large warm linseed poultices, sprinkled over with laudanum, may not only afford relief, but also promote the menstrual excretion. When the symptoms of local congestion are very marked, the application to the vulva of a few leeches every month, or about the fifth day of the local treatment, may be of great assistance. The commencement of this local treatment should be made to coincide with the menstrual nixus, when it manifests itself periodically. When it does not, a certain date should be taken, and adhered to at the interval stated—that is, every twenty-eight days. In such cases, the medicines known as emmenagogues, which exercise a special influence over the uterus, are scarcely, in my opinion, admissible, the object being to *gently* promote the natural function, and not to violently stimulate, and probably irritate, the uterine organs.

“In amenorrhoea connected with deficient uterine and bodily development, the local treatment should be conducted on the same principles, only it generally requires to be carried out more perseveringly, and for a greater length of time. In addition to the means mentioned, I have also derived great benefit from electricity, the electric current being carried through the pelvis from the hypogastric to the sacro-lumbar region, for an hour night and morning, during the week that local means are resorted to. In these cases, it is evident that the non-development of the body is often in a great measure the *result* of the dormant condition of the uterine organs, inasmuch as I have repeatedly succeeded in rousing them to action by the local treatment above detailed, when the most judicious and persevering general treatment had failed. In these cases, I have invariably seen the bodily structures subsequently develop themselves with great rapidity. At the same time, the knowledge of this fact must not for a moment prevent our employing every possible means of invigorating the general health, of vitalizing the economy, and of promoting the regular play of the various functions. After removing any morbid functional condition which a careful scrutiny may detect, recourse should be had to the mineral and vegetable tonics, and especially to ferruginous preparations, to which should be added a generous diet, moderate foot or horseback exercise, cold bathing or sponging, early hours for retiring and rising, and residence in the country, if possible.

“When amenorrhoea can be traced to a debilitating disease, such as chlorosis, phthisis, scrofula, etc., the best treatment is the treatment of the disease to which it is referrible. Thus, in chlorosis, the menstrual flux gradually diminishes, and may finally cease altogether under the influence of the progressive deterioration of the blood, without there being any uterine disease or any other uterine symptom than the scantiness and final disappearance of the secretion. As under appropriate general treatment the blood becomes healthy, menstruation returns or again becomes gradually more and more normal, without any local treatment being necessary in the immense majority of cases. The same may be said of scrofulous and other forms of constitutional debility. In pulmonary phthisis, the falling off and final disappearance of menstruation is a symptom of much more serious import, as it is generally connected with the more advanced stages of the disease, and with an amount of tubercular deposit, and of consequent marasmus, through defective nutrition, which renders the chance of a recovery very problematical.

“Amenorrhoea from physical obstacles can only be remedied by surgical

means. If the hymen is imperforate, or the lips of the vulva are adherent, and the menses have collected behind, a crucial incision in the centre of the bulging hymen, or vulvar protuberance, is all that is required. Care, however, should be taken, once the menstrual fluid has been evacuated, that the divided surfaces do not unite and cicatrize. This is to be prevented by the use of small sponge or cotton tents for a few days, or by the application of the nitrate of silver to the edges of the incisions—a more painful but equally efficacious process. When the vagina is partially or wholly absent or closed, either congenitally or by adhesion from accidental causes, the case is a much more serious one, and more difficult to remedy. If there is merely adhesion of the walls of the vagina, this adhesion can generally be removed by the dilatation of the vagina, coupled with the gradual and careful division of the adherent surfaces. When the vagina is partially or entirely absent, the symptoms produced by the retention and accumulation of the menses in the uterus may be sufficiently serious to render it imperative to attempt to form an artificial passage, by surgical means, to the distended uterus. In such cases, the difficulty and risk of the operation depend on the distance that separates the vaginal *cul-de-sac* or the imperforate vulva from the uterus, the operator having to make his way between the rectum and the bladder. Considerable assistance in diagnosis is derived from a careful rectal examination. It is of great importance to find a vent for these uterine accumulations of menstrual fluid, as, in addition to the suffering endured, there is positive danger to life. Cases are on record in which the distension of the uterus extended to the Fallopian tubes, and in which death occurred from the peritonitis occasioned by their rupture.

"Occlusion of the os uteri, as a congenital occurrence, is rare; but since I first recommended the use of *potassa cum calce* as a last resource in obstinate inflammatory disease of the cervical canal, I have seen several cases in which its use had been followed by all but complete occlusion, and by partial retention of the menses, or at least their difficult excretion. This was evidently owing to the want of due caution at the time of application and during the period of healing afterwards. The tendency of the tissues thus treated to contract being very great, it should be counteracted, if necessary, by the occasional use of wax bougies, until the process of repair has been fully accomplished. The possibility of this accident occurring through the want of caution of the operator, does not in the least invalidate the utility of the remedy, as an exceptional and ultimate one. I have generally, but not always, found this form of occlusion easy to remove by progressive dilatation. Should occlusion of the os uteri exist congenitally, once recognized it is easily remedied by a slight incision in the region of the os, and by subsequent dilatation.

"The catamenial function appears to be more especially liable to arrest from accidental temporary influences, in those females who present the low degree of sexual vitality to which allusion has been made in the first part of this paper, and with whom menstruation appears late and with difficulty. In such constitutions, indeed, it sometimes stops for many months, or even permanently, if no treatment be resorted to, without any apparent cause. Under the influence of decided general and local treatment, the menses will often return for a time, but flag and cease as soon as the treatment is suspended. If there is no positive disease of the uterus or ovaries, the emmenagogues, such as ergot of rye, savine, etc., may be cautiously tried. I have known also the married state, especially if followed by conception, produce a complete change in the functional activity of the uterine system, and menstruation become regular and natural. It is in these cases that the application of the nitrate of silver to the cavity of the uterus, or the scarification of its mucous surfaces, has been proposed. I must confess, however, that I do not think we are warranted in thus interfering with so delicate and sensitive a region of the uterus for such a purpose. In the unmarried female, the application of leeches to the vulva, and in the married to the neck of the uterus, answers every purpose, without being open to the same objection.

"The development of inflammatory disease in the neck or body of the uterus, or in the ovaries, and of cystic and scrofulous tumours in the ovaries, is one of the most frequent causes of amenorrhœa in those in whom the function

has once been fairly established, and especially of partial amenorrhœa. When such lesions exist, they generally give rise to other symptoms which an attentive and well-informed observer may easily recognize. This remark, however, applies more to the uterus than to the ovaries, for important morbid changes are not unfrequently found after death in the latter organs, which, during life, have given little other evidence of their existence than the modification or arrest of the catamenial functions.

"In all these cases, the amenorrhœa is merely a symptom of the ovarian or uterine disease. The latter is the condition to be treated, the only indication the amenorrhœa itself supplies being the advisability of having recourse to such local means as are calculated to promote menstruation, whenever nature appears to be making the least effort to establish the menstrual flux.

"In vicarious menstruation, our first effort ought to be directed to the restoration of the integrity of the uterine organs, if it be impaired. We should then, by all the means enumerated, attempt to divert the molimen hæmorrhagicum of menstruation from its abnormal to its normal seat. The most important of these means is the abstraction of blood from the vulva or cervix uteri, which should be resorted to every month, a day or two before the vicarious menstruation is expected, and may be repeated after it has begun, should the strength of the patient admit of such a step. By this treatment, the menstrual nîsus may nearly always be diverted into its natural channel; whereas, any attempt to stop the morbid hemorrhage, by means applied directly to the organ from which it takes place, might be productive of mischief to the system at large."—*Lancet*, April, 1852.

39. *A New Method of Ausculting the Eustachian Tube.* By Professor RICHTER. (*Schmidt's Year-Book*, 1851, No. 4. *Journ. Pract. Med.* Prague, 1852, vol. ii.)—Professor Richter states that the method here detailed supplies the place of Harvey's auriscope, as well as renders the use of the catheter as a means of diagnosis unnecessary, thus avoiding the introduction of an instrument into the Eustachian tube, the use of which is both difficult and dangerous. The external cartilage of the ear is bent forwards and pressed flat upon the external orifice of the ear, closing it tightly. A stethoscope, having the expanded or funnel end of small size, is placed upon the cartilage, bent over the ear as described above, making sufficient pressure to keep the cartilage flat upon the skull, and the external orifice of the ear entirely closed. When the Eustachian tube is free, the passage of the breath through the mouth and throat is distinctly heard, as well as the sound made in speaking, whistling, or hawking. The most striking effects are observed when one is enabled to produce *consonance in the Eustachian tube*. For the above purpose, the patient is requested to sing, or, better still, to whistle the notes of the musical scale, if possible, the entire extent. In certain tunes the listener, as well as the patient, will hear distinctly the consonance or accord in the ear which is closed; and even at times accompanied by a *metallic echo*, produced in the stethoscope. (The editor observes that the notes G, F, E, in the small and large octave with A's and E's, will be heard in whistling, and G and A in singing.) Should the Eustachian tube be closed, all of these effects above enumerated will be entirely wanting.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

40. *Hospital Gangrene.*—G. J. GUTHRIE, Esq., one of the most experienced military surgeons of the day, in a recent lecture on this subject, gives the following conclusions as the result of his vast experience:—

1. Hospital gangrene never occurs in isolated cases of wounds.
2. It originates only in badly-ventilated hospitals, crowded with wounded men, among and around whom cleanliness has not been too well observed.

3. It is a morbid poison, remarkably contagious, and is infectious through the medium of the atmosphere applied to the wound or ulcer.

4. It is possibly infectious, acting constitutionally, and producing great derangement of the system at large, although it has not been satisfactorily proved that the constitutional affection is capable of giving rise to local disease, such as an ulcer; but if an ulcer should occur from accidental or constitutional causes, it is always influenced by it when in its concentrated form.

5. The application of the contagious matter gives rise to a similar local disease, resembling and capable of propagating itself, and is generally followed by constitutional symptoms.

6. In crowded hospitals the constitutional symptoms have been sometimes observed to precede, and frequently to accompany, the appearance of the local disease.

7. The local disease attacks the cellular membrane principally, and is readily propagated along it, laying bare the muscular, arterial, nervous, and other structures, which soon yield to its destructive properties.

8. The sloughing of the arteries is rarely attended by healthy inflammation, filling up their canals by fibrine, or by that gangrenous inflammation which attends on mortification from ordinary causes, and alike obliterates their cavities. The separation of the dead parts is, therefore, accompanied by hemorrhage, which, when from large arteries, is usually fatal.

9. The operation of placing a ligature on the artery at a distance, or near the seat of mischief, does not succeed, from the incision being soon attacked with the disease, unless it has been arrested in the individual part first affected, and the patient has been separated from all others suffering from it.

10. The local disease is to be arrested by the application of the actual or potential cautery: an iron heated redhot, or the mineral acids pure, or a solution of arsenic, or of the chloride of zinc, or some other caustic which shall penetrate the sloughing parts, and destroy a thin layer of the unaffected part beneath them. If a sinus or sinuses have formed under the skin or between the muscles, from the extension of disease in the cellular or areolar structure, they must be laid open, and the cautery applied; for if any part affected be left untouched or undestroyed by the acid, the disease will recommence and spread from that point. The parts touched by the acids or cautery may be defended by cloths or other material, wetted with hot or cold water according to the feelings of the sufferers, and poultices of various kinds may be had recourse to, if unavoidable.

11. After the diseased parts have been destroyed by the actual or potential cautery, they cease in a great measure to be contagious, and there is less chance of the disease being propagated to persons having open wounds or ulcerated surfaces. A number of wounded thus treated are less likely to disseminate the disease than one person on whom constitutional treatment alone has been tried.

12. The pain and constitutional symptoms occasioned by the disease, considered as distinct from the symptoms which may be dependent on disease endemic in the country, are all relieved, and sometimes entirely removed, by the destruction of the diseased surface; which must, however, be carefully and accurately followed to whatever distance, and into whatever parts it may extend, if the salutary effect of the remedies is to be obtained.

13. On the separation of the sloughs, the ulcerated surfaces are to be treated according to the ordinary principles of surgery. They cease to eliminate the contagious principle, and do not require a specific treatment.

14. The constitutional or febrile symptoms, whenever, or at whatever time they occur, are to be treated according to the nature of the fever they are supposed to represent, and especially by emetics, purgatives, and the early abstraction of blood if the fever be purely inflammatory, and by less vigorous means if the fever prevailing in the country be of a different character. Pain should be alleviated by opium, which should be freely administered.

15. The essential preventive measures are separation, cleanliness, and exposure to the open air—the first steps towards that cure which cauterization will afterwards in general accomplish.

16. If the sufferer be very young, or of a weakly habit, his strength will frequently require to be supported in the most efficient manner by a due administration of the cinchona bark, wine, and a generous diet; means often found essentially necessary after all severe attacks of debilitating diseases.

The formidable nature of this terrible disease, before the local application of caustic remedies was fully adopted, will be best understood by the following document:—

Return of the Number of Cases of Hospital Gangrene which have appeared at the Hospital Stations in the Peninsula between the 21st June and 24th December, 1813.

Stations.	No. of cases occurred.	Discharged cured.	Died.	Under treatment.	No. operated upon.	
Santander	160	72	85	53	25	Most of these cases were sent from Vittoria.
Bilbao	972	567	387	28	183	
Vittoria	441	349	88	4	74	Thirty-seven transferred to Santander. Vera, being almost on the field of battle, had no case.
Passages	41	2	2			
Vera						
	1614	980	512	85	282	

Lancet, Sept. 1852.

41. *On the Cure of Nævus and Erectile Tumours by Elastic Subcutaneous Strangulation and Section.*—Dr. STARTIN, in a paper read before the Royal Medical and Chirurgical Society, November 9, 1852, described a new method of treating nævus and erectile tumours, which consists in encircling the tumour with a ligature passed beneath the skin by means of a long, angular-pointed needle, so as to include the morbid parts in a triangular space, extending a line or so beyond the boundaries of the nævus. To one angle of this subcutaneous thread elastic tension is applied by means of a vulcanized India-rubber ring or band, which occasions it to ulcerate or cut its way through the vascular structure constituting the malady, and thus obliterate its vessels and cure the complaint. The author describes two methods of operating by elastic strangulation. The first is to fix the tension upon the subcutaneous thread half an inch from its exit at the most convenient angle for applying it, without previously tying a knot upon the tumour, as in the case of the ordinary subcutaneous ligature. The second method is to employ a subcutaneous ligature, and tie a knot upon it, so as to strangle or arrest the circulation in the tumour before applying the tension. In most cases of extensive nævus both methods are required; the first, where the complaint is superficial, or implicates some of the features, as the eyelids or nose, for example; the second, where the malady is deeper, and may be regarded rather in the light of an erectile tumour, containing large bloodvessels, the too sudden division of which might be productive of troublesome hemorrhage. The author illustrated his paper by a wax-model cast from a nævus, which had been under treatment; and he brought forward a case of instruments which contained one or two original contrivances to facilitate the operation he described. The cases where “elastic strangulation and section” were deemed most applicable were examples of the malady involving various parts of the face or hairy scalp, where the cure by extirpation with the knife, by caustics, by breaking up the nævus in various manners, or by the ordinary subcutaneous ligature, would either produce too great disfigurement, risk of hemorrhage, loss of skin, or distortion of the features, to be advantageously resorted to. Several cases were cited in illustration of the plan advocated, and the success attending it, in one of which as many as thirty operations had been previously tried, by various surgeons, without a satisfactory result. For the details of these cases, as also for a more complete account of the opera-

tion, reference must be made to the paper itself. The author incidentally remarked that this operation, as far as the employment of elastic tension is concerned, appeared to him to be capable of adaptation to several other departments of surgery where such a force might be required, or where a ligature is used. As examples, he instanced the retained ligatures of arteries in healing wounds, or after tying uterine polypi, deep portions of tumours, hemorrhoids, varicose veins, as also in the extraction of the guinea-worm, the maintaining in position some fractures and dislocations; but, as these considerations were foreign to the subject under notice, he concluded by stating that, since the writing of his paper six months ago, he had successfully employed elastic strangulation and section in four cases of *nævus*; and that he was authorized by Mr. Paget, of St. Bartholomew's, to mention that he had twice adopted the plan with a fortunate result, although in one instance sloughing of the skin supervened, an occurrence which never happened in the author's own practice.—*Med. Times and Gaz.* Nov. 20, 1852.

42. *Result of the Ligature of the large Arteries in eighty-two cases occurring in the Practice of M. Roux.*—The following eighty-two operations comprise the whole number of ligatures of arteries performed by M. Roux, since 1808, and were communicated by him to the Société de Chirurgie. An abstract of the paper has been published in *L'Union Médicale*:—

Arteries.		Operations.	
Popliteal artery	1	1 Spontaneous Aneurism (ancient operation).	
		3 Recent wounds.	
		2 For hemorrhage after gunshot wounds.	
		2 Wounds of artery in operation.	
Femoral artery	46	7 Hemorrhage after amputation.	
		1 Femoral aneurism (Hunter's operation).	
		2 Femoral aneurism (ancient operation).	
		2 Fungous tumour of tibia.	
		27 Popliteal aneurism (Hunter's operation).	
Brachial artery	20	10 False aneurism of the bend of the arm.	
		6 Arterio-venous aneurism.	
		2 Hemorrhage after amputation.	
		1 Spontaneous aneurism of the ulnar artery.	
		1 Fungous tumour of the radius.	
Carotid (common)	6	1 Fungous tumour of the orbit.	
		2 Wound of the face.	
		3 As a precautionary measure before operations.	
Axillary (immediately below the clavicle)	4	1 Spontaneous aneurism.	
		1 Recent wound with false aneurism.	
		2 Hemorrhage after amputation at the shoulder-joint.	
Subclavian	3	Secondary hemorrhage.	
External Iliac	2	Secondary hemorrhage after ligature of the femoral artery.	
Total	82		

In these operations the distal mode of Brasdor has not been tried. The old method 16 times; and that of Hunter, with Scarpa's ligature, 66 times. The number of cases of true aneurism was 33, of which two only were women. The results were, 10 unsuccessful and 23 cures. The number of false aneurisms was 10, all of which were successfully treated.

Of the six cases of arterio-venous aneurism, for which the humeral artery was tied in each case, four were successful, and in two amputation was necessitated by gangrene or secondary hemorrhage.

These statistical facts will be read with interest by the English surgeon, by whom the thick ligature used by Scarpa is now carefully eschewed, but the small number of cases (4) in which secondary hemorrhage occurred, will cer-

tainly bear out M. Roux in his attachment to this mode of operation. The difference between the English and French modes of conducting the ligature of arteries is so great, both in the operation itself and in the dressing of the wound, that we rejoice to find that the above facts will form part of a complete work on surgery, which M. Roux is now preparing, and of which the memoir presented to the Société de Chirurgie is only an instalment.—*Prov. Med. and Surg. Journ.* Oct. 27, 1852.

43. *Compression in Aneurism.*—It is stated in the *Lancet* (October 9, 1852), that, within the last year, cases of aneurism have been submitted to compression in several of the London hospitals with satisfactory results.

The following case, treated in the London Hospital by Mr. CRITCHETT, affords a good example of the rapid manner in which well applied and carefully directed compression may promote the solidification of an arterial tumour, for all pulsation had ceased on the eighth day; and this case may be cited as the first among those which have been treated in the hospitals of London, wherein a week's compression sufficed to obtain the cure of the disease.

A hawker, aged thirty-two years, in the habit of gaining his living by selling salt about the streets, was admitted into the London Hospital, under the care of Mr. Critchett, in the middle of May, 1852. The patient had recently suffered from a severe attack of laryngitis, but was gradually recovering, having been under medical treatment for the affection prior to his coming into the hospital.

A large aneurism occupied the lower and inner part of the left thigh, and extended somewhat forwards and backwards, internally, to the median line of the limb. The lowermost part was on a level with the upper border of the patella, and the highest extended to about the inferior part of the middle third of the thigh. The sac altogether gave the idea of being about the size of a small shaddock; the cyst felt thin, and the thinnest part was in front and internally, in which situation the integuments were dark, as though from a slight amount of subcutaneous ecchymosis. Pulsation was everywhere distinct, and a *bruit de soufflet*, though not very loud, was audible, being, however, more distinct over the track of the popliteal artery than elsewhere. Both these conditions ceased on pressure being made on the femoral artery, the tumour, at the same time, somewhat diminishing.

The compression treatment was systematically commenced on the seventh day after the admission of the patient. Before the apparatus, Signorini's tourniquet, was had recourse to, the nature of the treatment and the mode of carrying it out were explained to the patient. The sheets, mattress, and pillows on which he lay were firmly fixed to the bed-frame, and the square pad on which the left limb, in a state of partial eversion and flexion, was placed, was also firmly attached; and at the bottom of the bed a large pillow was secured by bandages, and served as a *point d'appui* for the right foot, so that any gliding of the body could be avoided. A large cradle was placed over the body, in order that the bedclothes should not interfere with the proper action of the instruments. One drachm of acetate of potash was ordered to be taken three times a day; the patient was placed on middle diet, without beer, and was requested to drink as little as possible. The hair was shaved from off the skin over the pubis and the middle of the thigh, and the integument dusted over with flour.

A variable and occasionally interrupted pressure was maintained on the femoral artery for eight days, through the medium of a four-pound meat-weight (acting on a common tourniquet pad) to the groin; and a clamp at the thigh, applied at two distinct parts—the one two inches above the upper boundary of the aneurism, the other a little higher. The weight at the groin and the clamp were alternately used. The former instrument was kept on sometimes for an hour, at others for only half an hour; and prior to its being removed, the clamp was usually adjusted, and kept on for a period ranging from five to fifteen minutes.

During these eight days, the patient slept four or five hours each night, the pressure being of course not so uniformly kept up as during the day, but the

same method being followed out as far as possible. On the fourth day after the first application of the instruments, a small superficial vessel could be detected pulsating along the inner border of the patella; on the fifth and sixth, the patient had a sensation of pins and needles over the upper part of the tumour, which latter had become much harder, less in size, and sensibly hotter than the surrounding parts. The pulsation, on the sixth day, was just perceptible; and on auscultation, only an impulse, like the first sound of the heart, but much more feeble, was detected.

On the seventh day, the hair was again removed from the groin and middle of the thigh; and on the eighth, the pulsation in the aneurism had entirely ceased.

Between the fifth and eighth day, four or five small vessels were detected pulsating in the vicinity of the patella. On the ninth day after the aneurism was cured, a small superficial vessel was observed running over its centre. The pressure was continued for a week after all pulsation in the tumour had ceased; and the patient became an out-patient in the beginning of July, having been in the hospital fifty-two days. There was a good deal of oedema about the leg when he went out, but this gradually subsided after careful bandaging.

44. *Cases of Popliteal Aneurism cured by Pressure.*—Dr. W. K. SWETTENHAM, Surgeon to 44th regiment, reports (*Lancet*, Sept. 4, 1852) a case of popliteal aneurism in a healthy, able-bodied seaman, thirty-two years of age, successfully treated by pressure. The instruments employed were those invented by Mr. Reed, of Dublin. The tumour was perfectly solid six days after the first application of pressure to the main arterial trunk.

Mr. PRESCOTT HEWETT treated (*Lancet*, Oct. 9, 1852), by compression, a short time ago, at St. George's Hospital, a case of popliteal aneurism; the solidification of the sac was rather a long time in being effected, and it is not unlikely that the delay was partially owing to circumstances hardly under the surgeon's control. It would appear that the patient, a woman about thirty years of age, was admitted January 17, 1852, with popliteal aneurism on the right side. Much care was bestowed on the exact adjustment of the instrument, which consisted of the usual steel hoop, with a screw and pad acting vertically in a ball and socket. Pain and discomfort, though a weight was used at the groin, prevented, at one time, the compression from being carried on; it was, however, subsequently persevered in for several months, Mr. Hewett placing the patient, towards the end, on very low diet. At the expiration of about five months, the tumour ceased to beat, and gradually became hard. There was reason to suppose that the horizontal posture was not so strictly continued as might have been desirable.

45. *On a New Mode of Operating in Varicose Aneurism.* By M. MALGAIGNE. —The difficulty which usually occurs in operating for this, in securing the two ends of the artery, while the veins are incessantly pouring out blood, induced M. Malgaigne to try a new plan of procedure, by which opening the sac, or the integuments covering it, might be avoided. The case was an aneurism resulting from venesection, performed ten or twelve weeks before. A small pulsatory tumour existed at the bend of the arm, which caused little inconvenience. The artery was taken up, by means of two separate incisions, just below and just above the tumour, and the cure was rapid and complete, so that when the patient was seen seven months afterwards, no traces of the aneurism could be observed.—*Brit. and For. Med.-Chirurg. Rev.* Oct. 1852, from *Rev. Méd. Chirurg.* tom. xi.

46. *Ligature of the Vertebral Artery in a Case of Gunshot Wound.*—M. MAISONNEUVE relates a case, which, although it terminated fatally, is of interest on account of the course which the ball took, and the successful ligature of the vertebral artery. A lady was shot in the neck, and the ball glanced downwards from the side of the cricoid cartilage, and penetrated between the trachea and œsophagus, the great bloodvessels, and nerves, without injuring any of them, until it reached the sixth cervical vertebra, deep into the body of which it be-

came impacted. In its course it fractured the left transverse process, and divided the vertebral artery. The hemorrhage which occurred at the time of the accident soon stopped, but recurring again violently on the eighth and ninth days, the wound was enlarged in order to search for the vessel. On removing the finger from the hole in the vertebra, whence the ball was extracted, the ends of the bleeding vessel were perceived and secured; this, from the ease with which the operation was performed, being at the time supposed to be the inferior thyroid. The ligatures came away in ten days, and all seemed doing well, when the patient, at the end of the third week after the accident, suddenly fell into a state of coma, and soon expired. The two ends of the vertebral artery were found firmly plugged with coagula, but necrosis had affected the vertebra, and an aperture led to a communication with the spinal canal, where there was sero-purulent effusion.—*Brit. and For. Med.-Chirurg. Rev.* Oct. 1852, from *L'Union Médicale*, No. 34.

47. *Microscopic Examination of Cancer.*—Dr. MURCHISON read to the Edinburgh Physiological Society, May 23, 1852, the particulars of a case of cancerous disease of the uterus and adjacent organs, and likewise of the liver, in which cerebral symptoms became prominent before death. On *post-mortem* examination, there was found, besides unequivocally cancerous masses in the above situations, a lesion of the brain, resembling to the naked eye some forms of cerebral softening; but on closer examination, especially with the aid of the microscope, developing peculiarities of structure which identified it with cancer. The softened parts yielded a very peculiar creamy juice, which contained large nucleated cells, of highly complex character, and resembling those found in the decidedly cancerous tumours of the liver, uterus, etc., in this case. The juice containing these structures was in the largest softening surrounded by a delicate vascular wall, inseparable from the cerebral substance; and in the others, the vessels were distributed through the disorganized cerebral matter, giving it exactly the appearance of the so-called "red-softening." There was no trace of fibrous tissue in any part of the cancerous substance, which was of a yellowish-white colour and pulpy consistence. The case had occurred in the female clinical ward of the Royal Infirmary, and the *post-mortem* examination was made by Dr. GAIRDNER. Dr. M. pointed out the resemblance between this case and another case of cancer of the brain, recorded by Dr. REDFERN, in the *Monthly Journal of Medical Science*, vol. xi. p. 510, which had also been remarkable for containing no fibrous tissue. He concluded by making a few remarks on the asserted essentiality of fibrous tissue to the constitution of cancer.

Dr. BENNETT stated that he had been of opinion that nucleated cells, imbedded in a fibrous stroma, constituted the best definition of cancer, until the publication of Dr. Redfern's case. He still believed that the detection of such a fibro-cellular structure would prove most useful in enabling us to separate cancerous from fibrous, epithelial, and other growths. The observation of Dr. Redfern, together with the present case, the cancerous formation in the brain of which he had carefully examined, proved that nervous texture constituted an exception. This was the first decided case of encephaloma in the brain that had come under his notice.

Dr. W. T. GAIRDNER said, that this was a remarkably satisfactory case, as illustrating the nature of the assistance furnished by the microscope in the investigation of cancer. In performing the dissection, he had been struck with the peculiar character of the softenings, and the creamy juice contained in the largest of them; and considering their occurrence in connection with cancer of other organs, and without the usual accompaniments of cerebral softening—such as disease of the vessels—he had been led from the first to believe the cerebral lesion of cancerous origin, and had afterwards found all doubt on the subject removed by the very peculiar microscopic structure of the softened parts of the brain. It so happened, also, that a similar conclusion was arrived at, quite independently, by Dr. Murchison, and likewise by Dr. Bennett; while there could be no question that, but for the microscopic examination, it would have been impossible to have formed a clear idea as to the character of the lesion; and anything less than a most careful and minute examination would

have been very apt to lead to its being recorded as an ordinary case of cerebral softening.—*Monthly Journ. Med. Sci.* Aug. 1852.

48. *On Cancroid, or Epithelial Cancer.* By M. MAISONNEUVE.—This affection has the greatest possible resemblance to cancer, deceiving the most experienced eye and the most matured practitioner, so that without the intervention of the microscope, it would probably always have continued impossible to recognize its true nature. Surgeons were, indeed, aware that certain cancers of the most hideous aspect, and most fetid smell, were capable of being removed by operation without relapse occurring, and that a cure was still sometimes obtainable after one or more relapses, notwithstanding that the neighbouring glands had become invaded. They were also aware that some of these distressing affections could go on corroding the surface for years, without infecting the entire organism, and without inducing cachexia; and that, at last, they led to death much rather by inducing local disorders than by general infection. These facts were regarded as peculiarities of evolution, the reason of which was quite unknown; but the microscope, by revealing to us the fact that these peculiarities are dependent upon special anatomical characters, has enabled us to constitute a distinct family in the class of cancers, under the name of *cancroid*, or *epithelial cancer*.

Examined by the microscope, its essential character is the epidermic cell, which may easily be recognized by its distinct outline and regular form, and especially by its small and rounded nucleus. These cells are often seen agglomerated together into rounded bodies, which have been termed *epidermic globes*. The epidermic matter does not present itself under the lactescent or emulsive appearance of cancer, but under that of a whitish substance, having the consistency of soft paste, and spreading out in water in a lamellar form. It is sometimes seen in little rounded masses resembling tubercle; but it is oftenest infiltrated into the tissues which it invades, whence it can be squeezed or scraped. It always originates in an external or internal tegumentary surface, naturally covered with epithelium—as the skin, mucous membrane, or even serous membrane; but when it takes an extension, the epidermic infiltration may penetrate to great depth in the various tissues. It frequently invades the lymphatic glands, which are in immediate relation with the diseased parts; but when it has even passed this barrier, it never determines a general infection, or even a cachectic state of the economy.

This absence of infection is the capital point in its history, and the one which, in a clinical point of view, constitutes its essential distinction from true cancer. Anatomy and physiology seem to afford an explanation of this difference. Thus, in considering the mode of nutrition of our healthy tissues, we find that the cells of which they are composed are constantly undergoing absorption and elimination through the natural emunctories. As in *cancroid*, the fundamental cell is nothing else than normal epidermis, or epithelium, it is easy to see that if absorption carries it into the torrent of the circulation, it will be eliminated by the regular channels, and give rise to no general disturbance. But in certain morbid products, and especially *cancer* and *pus*, the volume of the cell is no longer in natural relation to the parenchyma of the different secretory organs, so that, if by any means it gains admission to the circulating stream, it has no opportunity of obtaining an exit, and becomes detained in the midst of the tissues, only to excite disorder. To simplify this view of the case, we have only noticed the difference in size of the cell, and especially of the nucleus; but many other differences, both chemical and vital, may exert an influence which we are unable to determine.

As we have no means of modifying the vitality of the tissues which secrete this abnormal quantity of epidermic cells, and no agent capable of inducing their absorption, their destruction is the only source left us; and for this purpose, M. Maisonneuve prefers caustics to excision or ligature. The caustic not only removes the diseased part, but modifies the condition of the tissue that secreted it; and, in fact, this means was preferred by most surgeons even before the microscope had revealed the difference between this affection and true cancer. Some caustics are preferable to others, seeming to

exert almost a specific effect upon the epidermic cells, as the arsenious acid and nitric acid. The first of these not only acts upon the parts it is applied to, but it is also absorbed by the lymphatics, and may thus pursue the epidermic molecules into these organs.—*Brit. and For. Med.-Chirur. Rev.* Oct. 1852, from *Gaz. des Hôpitaux*, No. 28.

49. *Statistics of Operations for Cancer*.—In our No. for July last, p. 259, we have given an extract from the first lecture by Professor PAGER before the Royal College on this subject. In a letter, since published in the London journals, the Professor qualifies the statement there made. He says "that the statement had reference to cases of scirrhus cancer of the breast. In such cases, I believe that the general average duration of life, after the patient's first observation of the disease, is forty-nine months; that the average life of those whose breasts are removed, and who survive the effects of the operation, is forty-three months, and that the average life of those in whom the disease is allowed to run its course is about fifty-five months.

"In the second lecture, I said that the general result of operations for medullary cancers is very different; and that, although they are so seldom long survived that they are generally considered to be less beneficial than the operations for scirrhus cancers of the breast, yet, on the whole, they are more so. The general average of life of persons affected with medullary cancer of the eye, testicle, breast, bones, or other external organ, may be reckoned at about twenty-four months from their first notice of the disease; but I believe the average for those from whom the primary disease is removed, and who do not die in consequence of the operation, is about thirty-four months; while the average for those in whom the disease is allowed to run its course is scarcely more than a year.

"In the third lecture, I expressed the belief that, on the whole, the operation for epithelial cancers is even more effective in prolonging life than the operation for medullary cancers; but that the wide diversities in the duration of life amongst those affected with this form of cancer, make it very difficult, at present, to deduce such an average as may be relied on. And I would repeat what I said in one lecture respecting all these averages—namely, that such general results deserve only general consideration in the treatment of particular cases of cancer. They may justly determine a general rule of action, but it can be only such a rule as must admit of numerous exceptions. In many cases of scirrhus cancer there are sufficient reasons for operating; and, in many cases of medullary and epithelial cancers, reasons as sufficient for refraining. The right course must, in each case, be determined by a just appreciation of all the conditions each presents.

50. *On Discharge of Fluid from the Nipple in Innocent Tumours of the Breast*.—M. RICHARD observes that while in cancerous tumours, which in their growth induce atrophy of the mammary gland, no discharge from the nipple takes place, innocent tumours, as partial hypertrophy of the gland, or cystic growths, are always attended with more or less discharge or oozing, the fluid being sometimes syrupy or adhesive, and at others bloody. Repeated opportunities of observation have convinced him that this is a valuable diagnostic and prognostic sign.—*Rev. Méd. Chirurg.* tom. xi.

51. *On the Treatment of Epistaxis*.—M. REVEILLE-PARISE observes that it is very desirable to be in the possession of a simple means of arresting epistaxis when severe. Plugging is not the simple operation it has been described; it is very tedious, and often excites vomiting or sneezing, which aggravates the bleeding. Moreover, we may not have any appropriate instrument at hand.

He has found three means of great utility: 1. Alcohol, applied upon dossils of charpie, is a most energetic styptic. It causes a strong or even a temporarily painful sensation, and often speedily checks the bleeding. The essential point is, before passing in the alcohol, to dry the nostril well by blowing the nose, and by charpie. 2. Equal parts of powdered gum and alum may be blown into the nares, and dossils rolled in the mixture then applied, a magma which

arrests the hemorrhage, being speedily formed. Before removing the dossils, they require to be well moistened with tepid water when the bleeding has quite ceased. 3. The best of all means is, however, the application of carded cotton-wool; and it is surprising that surgeons have hitherto made so little use of this hæmostatic agent. After the nostril is well dried, dossils of pure clean cotton should be passed in, until it is filled. They must not be too tightly rolled, or the blood cannot penetrate the interstices, nor too loosely, or it will do so too easily, and the hemorrhage will continue.—*Bulletin de Thérapeutique*, tom. xlii. p. 308.

[Other correspondents of the same journal speak also of the great utility of closing the *alæ nasi* with the fingers, either as the sole or adjuvatory treatment; also of the compression of the carotid on the same side as that on which the bleeding occurs.]—*Brit. and For. Med.-Chirurg. Review*, Oct. 1852.

52. *Sal Ammoniac in Enlarged Prostate*.—M. FISCHER, of Dresden, has long been in the habit of administering the *sal ammoniac* in large doses, in chronic enlargement of the prostate; and since he published an account of his success with it in 1831, various other German practitioners have supplied corroborative testimony. Seeing that surgical treatment is so often inefficient, this means would seem to supply a valuable resource, and this especially as it may be employed in conjunction with other remedies. In the present paper, M. Vanoye relates two cases in addition, in which the success obtained seems quite to justify former encomiums. In both, the gland became progressively and greatly diminished in size. Large doses are, however, required. We may commence with fifteen grains every two hours, and go on to double or treble this quantity, so that nearly half an ounce is taken *per diem*. When the dose given is too great, we are admonished by disorder of the digestive organs, a miliary eruption, profuse sweats, and especially by scorbutic symptoms. These ill effects may be prevented or diminished by the employment of mucilaginous vehicles, bitter extracts or aromatics, and a good animal diet. Persons suffering from hemorrhagic disposition, or affections due to poverty of blood, should not be subjected to this treatment.—*Brit. and For. Med.-Chirurg. Rev.* Oct. 1852, from *Bulletin de Thérapeutique*, tom. xlii.

53. *Dislocation of the Humerus forwards and upwards*.—Mr. R. G. H. BUTCHER records (*Dublin Medical Press*, October 20, 1852) the following well-marked case of dislocation of the humerus forwards and upwards:—

Eliza McMahon, aged 35, a large muscular woman, was admitted into Mercer's Hospital at 8 A. M., October 3, 1852, under my care. On the evening previous to her admission, at 11 o'clock, she was disorderly in the street, and being taken up by the police, she offered great resistance against being taken to the station-house. In the struggle that ensued, she says she remembers having got a very violent twist in the right arm, which gave her the most excruciating pain. She was retained all night as a prisoner, and brought on the following morning, at the time specified, to the hospital, nine hours having elapsed from the period of the receipt of injury.

On stripping the chest and shoulders, the deviation from symmetry was marked and striking. Circumstances combined to render the outlines of the injury prominent—viz., a few hours had only passed from the moment she sustained the accident; therefore, effusion had not time to set in and round off the irregularities created by the new position of parts. Again, the patient, though large and full, had the muscular system well developed, with scarcely any deposit of fat.

The most prominent features of the accident were the following: There was flattening of the shoulder and prominence of the acromion far greater than in the dislocation into the axilla. The deltoid was not only flattened and flaccid, but likewise twisted forwards, the fibres attached to the posterior edge of the acromion participating most in this puckering of the muscle. The head of the bone formed a remarkable tumour to the sternal side of the coracoid process, corresponding to the centre of the clavicle, and about half an inch below its inferior edge; so prominent was the swelling that the coracoid process could

very indistinctly be felt as it lay buried external to it. The axis of the shaft of the humerus was directed from this point, about the centre of the clavicle, slightly backwards; at the same time, it lay close to the side—a position quite contrary to the descriptions given by writers on the subject. In another instance where I was consulted very recently, the limb also hung close to the side, and its other characteristics were as marked as in the present instance. *The amount of shortening, measured with the greatest accuracy, was more than half, and very nearly three-quarters of an inch.* Now, this fact was verified by the observation and measurement of others as well as myself. All the movements of the joint were greatly restrained. Any attempt at bringing the limb forward was productive of great pain, and at once interrupted by the head of the bone being tilted against the coracoid process. Backward motion was restrained by the action of muscles, and the carrying of the limb outwards was prevented by the opposition of the clavicle to the head of the bone.

I readily reduced the dislocation in the following way: Having placed the patient on the side of the bed in which she had been lying, in the sitting posture, a folded sheet was passed round the chest, close under the injured part, and the ends given to an assistant who stood at the opposite side of the bed; thus counter-extension was provided for. Standing on the right side of the patient, with my left foot resting on the edge of the bedstead, I brought the luxated arm over my knee, and made forcible extension downwards by means of a jack-towel previously fastened and secured by the clove hitch round the humerus at its lower end: thus, the head of the bone was moved downwards below the coracoid process. The extending force was then directed outwards, and a little forwards, by the aid of an assistant, and the head of the bone was quickly drawn up to the glenoid cavity, and restored with an audible snap. By placing the patient on the side of the bed, instead of on a low chair, as is usually done, I gained great additional power by bringing into acquisition the weight of my body and shoulder in forcing down the extending hand in the manner described.

After the reduction was effected, the limb was bandaged to the side, and the elbow supported by a sling tied over the opposite shoulder. Surgical authorities are somewhat divided as to whether the arm be shortened or lengthened in the dislocation of the humerus forwards. In the cases which I have seen, and as noticed in the one just mentioned, the shortening amounted to *more than half, and nearly three-quarters of an inch.*

54. *Pelvic Abscesses.*—[*The Dublin Medical Press* (Jan. 7, 1852) contains some very interesting practical observations on pelvic abscesses, by Dr. FLEETWOOD CHURCHILL, so well known in this country by his valuable writings.]

Dr. Churchill has observed pelvic abscess under various circumstances.]

1. It may occur, not only unconnected with parturition, but in unmarried persons, at different ages, and independent of all the ordinary irritants of these organs. A case occurred in the person of one of the nurses at the Meath Hospital, a single woman, about 50 years of age, and without apparent cause. It exhibited the usual symptoms, which I shall notice by and by, and ran the usual course, softening and opening into the rectum, after which the patient recovered.

2. I have seen several cases of the disease in married women who never had had children. In two instances, it occurred within a few months of marriage; in both, the tumefaction was considerable; but both terminated in resolution.

3. In some few cases, it occurs as a secondary complication of severe uterine irritation, apparently from the use of local irritants, the two frequent employment of the uterine sound, the introduction of the pronged pessary, &c.

4. I have seen the disease follow a smart attack of ephemeral fever several times: in one case it terminated in resolution, after several weeks; in another, in suppuration and evacuation by the rectum; and a third is at present under treatment.

5. It not unfrequently complicates or terminates an attack of simple hysteritis, of which several examples have come under my notice, terminating most generally in suppuration. One such case was the largest abscess of the kind I

have ever seen, occupying about one-fourth of the abdomen; and in another, at present under my care, the tumour acquired the size of an orange, and after remaining stationary for some months, is now nearly resolved.

6. In certain epidemics of puerperal fever, inflammation of the uterine appendages appears as a special variety, with or without a corresponding affection of the uterus.

It is not unlikely that the disease may occur under other circumstances.

[*Pathology.*—The disease is a phlegmonoid inflammation; but the cases may be divided into two classes, as regards their locality.]

1. The first and largest exhibits a tumour just above the brim of the pelvis, and closely connected with it, fixed and immovable, extending downwards internally outside the vagina, through the sides of which it can be felt.

2. In the second class, the tumour is distinct from the pelvis, rounded, and quite movable in every direction.

In the latter cases, the inflammation appears limited to the uterine appendages; *i. e.*, the ovary, broad ligament, and Fallopian tubes. In the former, the soft parts which line the anterior and lateral wall of the pelvis are also involved in addition to the uterine appendages; these are more properly named pelvic abscesses.

[Although either side indifferently may be affected, Dr. C. thinks the left side is more frequently the seat of the inflammation.]

Causes.—1. In certain cases, the abscess is undoubtedly the result of mechanical injury, and the cause is quite intelligible.

2. In others, again, there would appear to be a sort of metastasis of inflammation from the uterus, which in these cases occurs towards the termination of the uterine affection.

3. In a third class of cases, especially when the patient is unmarried, it seems more fairly attributable to cold than to any other cause; but what may be the influence which determines the attack to this region, it is quite impossible to say. In one of the cases to which I have alluded, all the uterine functions had been some time quiescent.

4. Lastly, in puerperal epidemics, when the uterus is involved, we could hardly expect that its appendages would escape; and accordingly we find that they generally share in the disease, though much more remarkably in some epidemics than in others. In another place, I have given statistics of the comparative frequency.

[*Symptoms.*—The disease may, and generally does, Dr. C. thinks, commence by a febrile attack; but this is not always the case. There may be a rigour, followed by heat, or this may be entirely absent. Sooner or later, the patient complains of pain or uneasiness in the lower part of the abdomen; but the amount of suffering varies a good deal, and pretty much in accordance with the amount of fever.]

If we examine the abdomen carefully, we shall either find a tumour just above Poupart's ligament, of varying size and thickness, and firmly fixed to the pelvis; or a movable tumour, rounded, firm, and elastic, lying above the pelvis in the abdomen.

In the former class of cases, a vaginal examination adds nothing to our information, as the tumour is out of reach; but in the latter we can trace it extending more or less down into the pelvis, adding a lateral thickness, extremely tender on pressure. Generally speaking, the uterus is pushed a little to one side, is not tender on pressure, but moving it gives pain. In one or two cases, I have seen the uterus fixed and nearly immovable; in one case only have I seen both sides affected. This occurred in a married woman, unconnected with delivery.

In the former class, also, in addition to the pain, tenderness, &c., the movements of the leg of that side are affected; the patient cannot stretch it out straight without great pain, nor can she walk or stand up without bending forward.

In the latter cases, the movements of the limb are quite unaffected. This distinction is, I think, of considerable practical value.

The tumour, I have said, varies in size; it is, however, always tender on pressure, and not less so as the disease advances. When it attains a considerable size, or is attended with much irritation, I have seen the bladder and rectum sympathetically affected; the former more frequently so, giving rise to a frequent desire to evacuate their contents. In only one case have I had reason to believe that the tumour offered a mechanical impediment to the passage of the feces.

These, sir, are the principal symptoms present in a simple case of pelvic abscess; but they, as well as the course of the disease, will vary much according to the extent of the local affection, the amount of constitutional disturbance, and, in some degree, according to the circumstances under which the attack has occurred.

1. In some cases I have seen, the affection had a purely local character. There was the tumour, tender, firm, movable, or immovable; but the pulse was scarcely quickened from beginning to end; the appetite but little affected; the bowels regular, &c. The patient was confined to the sitting or recumbent posture, and suffered pain locally, but that was all.

2. In other cases, the local suffering was very considerable and unceasing; the pulse very quick, at least 120, with sweating at night; utter loss of appetite; irregularity of bowels; no sleep, and great emaciation.

3. Lastly, the cases which occur during an epidemic of puerperal fever will present its general characters in addition to the local symptoms already mentioned.

With more or less of these symptoms, but with the local ones always, the disease runs its course not quickly; often, on the contrary, very slowly, but with an uncertain duration in each case. I do not think I ever saw the tumour disappear or suppurate in less than a month; and I have known it run on to three or four, as in two cases at present under my care.

The disease may terminate either by resolution or suppuration.

1. By resolution. I have seen repeated instances of this termination, both when the tumour is free and when it is attached to the pelvis, though more frequently in the former than in the latter, and much more frequently in those cases where there is but little constitutional irritation. In such cases, the tumour may increase to a certain degree with the symptoms I have described; it then remains pretty stationary for a time, often a considerable time, after which it gradually and slowly subsides. It is worthy of notice, that if the patient be imprudent during this process, the morbid action in the tumour may be re-excited, and the case may terminate in another manner. In one of my cases the tumour had nearly disappeared, when the lady's servant became suddenly insane, and so frightened her that the tumour enlarged, and all the symptoms reappeared. The time occupied by the process of resolution is generally considerable. I have two cases under my care, at this moment, illustrative of this; in one, the tumour, which was free, has all but disappeared, after nearly five months; and, in the other, the fixed tumour has considerably diminished, after three months.

2. In the majority of cases, however, the tumour suppurates, softens, generally perceptibly, and, after a process of absorption of the intervening tissues, terminates by the evacuation of the purulent matter; this formation of matter being generally, though not always, marked by the occurrence of rigors. The channel through which this takes place varies a good deal.

1. In some cases, it has been evacuated into the peritoneum, giving rise to peritonitis; but this must, I think, be very rare, at least in upwards of twenty cases which have come under my notice it never occurred. I recollect a case which occurred to my friend the late Dr. Haughton, which now appears to me to have been a case of the kind. The poor woman had recovered badly from her confinement, and some time afterwards, when at the night-chair, she felt something give way, and peritonitis immediately followed.

2. Cases are on record, in which the abscess opened into the bladder. If I mistake not, I saw one recently in one of the journals; but such cases I believe to be the most uncommon of all.

3. The tumour may soften at its lower part, and the matter may find its way

through the coats of the vagina, and be discharged through that canal. I have seen several cases of this termination, the results of which have been very favourable. It has been suggested that we should puncture the tumour in this situation, when the situation of the softening is suitable; nor do I see any objection to the plan. I have, however, not found it necessary.

4. The most common situation, certainly, for a spontaneous opening, is into the rectum, and then the matter will be found discharged along with the stools. On this account, when the tumour is observed to become softer, and we have reason to suspect that matter is formed, the alvine evacuations should be carefully examined. Except when the matter escapes into the peritoneum, no degree of pain seems to accompany its evacuation. It often passes unobserved by the patient, and sometimes seems marked by a sense of relief in the tumour.

5. In a considerable proportion of cases, the tumour approaches the surface gradually and engages the integuments, which become tense, fixed, and sometimes red and shining. Then fluctuation can be felt, the intervening integument is absorbed, and the matter points, as it is called.

The extent of these abscesses, superficially, is generally not much beyond the size of the tumour at an earlier period, but in some cases I have seen them very large; in one case, scarcely less than one-fourth of the abdomen seemed involved. I do not think it would be wise to wait for such an extent of disease; but we ought to open it at an earlier period, and thereby save the patient much suffering.

The symptom which most surely indicates this mode of termination, or rather this locality, is the skin becoming fixed over the tumour, not rolling freely, but being adherent to it.

Diagnosis.—There can hardly be any difficulty in the diagnosis of pelvic abscesses which occur after delivery, and as a part of a more general puerperal affection; the attention being directed to the uterine system, a careful local examination will detect the tumefaction, whether it be fixed or not. If it be situated deep in the pelvis, and scarcely appearing above the brim, still the pain down the leg, and the difficulty of extending the limb, will leave but little doubt.

Perhaps an equally careful examination might be equally successful in the unimpregnated condition; but as the disease is not generally expected under such circumstances, a less minute investigation may, and often does lead to a false conclusion. I have myself known a case of pelvic abscess pronounced to be a fibrous tumour by very competent authority.

Now, the pathognomonic symptoms are, the pain in the tumour and down the leg, the impossibility of standing quite upright, or extending the leg completely, and the tumour detected on external and internal examination.

1. From fibrous tumours it is distinguished by its comparatively quick growth, the amount of uneasiness, and the termination. The former increase very slowly, and insensibly give rise to few or no symptoms, and, above all, are not common in the uterine appendages.

2. In women of a certain age, the filling up more or less of the pelvic cavity might be supposed to result from cancerous deposition; but here we have no general cancerous diathesis, the uterus is always unaffected, and the occurrence of suppuration or resolution solves the difficulty.

3. That one variety of abscess which is unconfined resembles much ordinary ovarian enlargements, at first sight; but it differs in this, at least according to my experience, that it never occurs except in connection with childbirth or miscarriage; and, as a general rule, the growth is much more rapid in the cases under consideration.

The affection, then, may be considered as well marked, and, with care, not difficult of appreciation, but requiring special care and attention when it occurs independent of parturition.

Prognosis.—For so serious an attack, involving such important organs, and liable to such various terminations, the prognosis is very favourable. I have seen more than twenty such cases, and have never seen one in which any unpleasant result occurred. Some fatal cases are on record, but they must be very rare, and probably in consequence of secondary peritonitis.

The disease is, however, very tedious, and may reduce the patient considerably, so that there may be some risk of the incursion of other diseases, if the patient be predisposed thereto.

Treatment.—Whether the attack come on after delivery or independent of it, if we see the patient during the acute stage, it will be necessary to apply leeches over the tumour; to repeat these, if required, in numbers according to the amount of irritation and the patient's strength, and to follow them by constant poulticing.

The bowels should be kept quite free, and I have found benefit from small and repeated doses of calomel or blue pill, but not continued so long as to affect the gums.

The diet of the patient, during this first period, must be low, and I need hardly say that she must be confined to bed.

After we have somewhat subdued the acute inflammation, we must still continue the poultices until suppuration is established; but if the pulse be quiet, we may allow a little better diet, such as chicken-broth or beef-tea.

When we are satisfied that suppuration has taken place, that matter is formed, then our anxiety is as to the place where it is to be evacuated. If by the bladder or intestine, we can do nothing but continue the poultices; but if, on a vaginal examination, we find the tumour soft and the intervening parietes thin, we are advised to make a puncture with a bistoury into the tumour, first ascertaining the presence of pus by an exploring-needle. If we succeed, the after-treatment is simple; so long as purulent matter escapes, the poultice may be continued, and occasional pressure made upon the tumour, so as to empty it as much as possible.

But if the tumour enlarges above Poupart's ligament, involves the skin, and becomes soft, with a sense of fluctuation, it must be opened freely in this situation; and will save the patient some suffering if we make an incision reasonably early. Sometimes a large amount of matter is discharged with great relief, sometimes only a small quantity; but the discharge will continue so long as suppuration goes on. When it ceases, the poultices may be omitted, and some dressing substituted if the wound remains open.

When the abscess is opened, we may allow the patient a more generous diet, with wine, &c., and in many cases bark may be given with benefit.

But if the tumour shows a disposition to resolve itself, it will be advisable by degrees to leave off the poultices, and substitute cotton wool or flannel. In some cases this process is hastened by a small blister applied occasionally, or by painting the part with strong tincture of iodine, and I have seen great benefit and improvement result from warm hip-baths twice or thrice a week.

OPHTHALMOLOGY.

55. *On the Contractile Tissue of the Iris.*—[We copy the following interesting observations on the contractile tissue of the iris by JOSEPH LISTER, B. A., from the first number of the *Quarterly Journal of Microscopical Science*, Oct. 1852]:—

Our knowledge of the cause of the movements of the iris was till within the last few years in a very unsatisfactory condition. That this organ possessed contractile fibres was a matter of inference, not of direct observation. In the third part of the last edition of *Quain's Anatomy*, published in 1848, we find it stated (p. 915) that the radiating and circular fibres of the iris are generally admitted to be muscular in their nature, but the grounds for that admission are not mentioned. Mr. Bowman's *Lectures on the Eye*, delivered in the summer of 1847, and published in 1849, show us that the then state of histology in this country did not enable that accomplished microscopical anatomist to identify the fibres of the iris with other plain (unstriped) muscular tissue. At page 49, he says: "The fibres which make up the proper substance of the iris are of a peculiar kind, very nearly allied to the ordinary unstriped muscle, but not by any means identical with it." He afterwards goes on to argue that, as we know that the organ changes its form, and as its vessels are so distributed that

it cannot be erectile, we have no other resource than to consider its fibres contractile, which conclusion he supports by reference to the striped fibres in the iris of birds and reptiles.

In 1848, Professor Kölliker announced to the world his grand discovery of the cellular constitution of all plain muscular tissue, in a full and elaborate paper in the *Zeitschrift für Wissenschaftliche Zoologie*.* At p. 54 of the first part of the first volume of this journal, after speaking of the arrangement of the fibres of the ciliary muscle, the sphincter pupillæ, and dilator pupillæ, he makes the following statement: "The elements of all these muscles are undoubtedly smooth, muscular fibres. In man, I have but seldom succeeded in isolating the individual fibre-cells, but I have had more frequent success in the case of the sheep, where I found them in the ciliary muscle, on an average, 1-600th of an inch in length, and 1-4000th to 1-3000th of an inch in breadth. In man, in all these muscles one sees, as a rule, only parallel fibres projecting to a greater or less extent at the edges of small fragments of the tissue, these fibres exhibiting in abundance the well-known elongated nuclei, either with or without the aid of acetic acid. In man, the muscle of the choroid (ciliary muscle) has broader and more granular fibres and shorter nuclei than the iris. In the former, the nuclei measure from 1-2400th of an inch to 1-1333d of an inch; in the latter, as much as 1-1090th of an inch."

Here, then, we have, so far as I know, the first and only recorded observation of tissue in the iris identical with ordinary unstriped muscle.

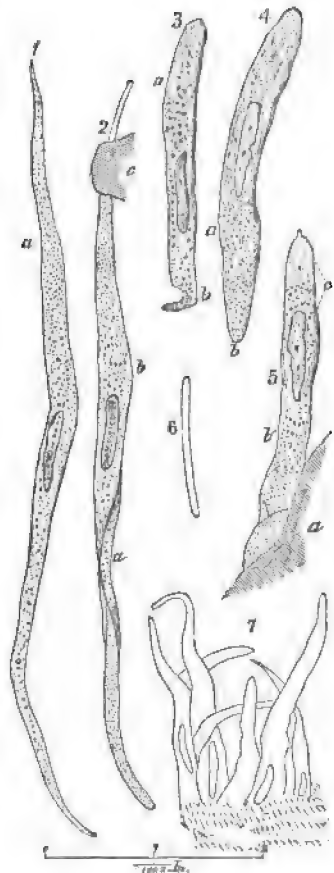
It is to be remarked that, where he alludes in the passage above quoted to having in rare cases separated the individual fibre-cells of the muscular tissue, Professor Kölliker speaks of the three muscles (ciliaris, sphincter, and dilator) collectively; in other words, that he does not tell us in plain terms that he has isolated the fibre-cells of the iris at all. Now, the ciliary muscle is confessedly easier to deal with than the iris. Mr. Bowman who speaks so doubtfully of the fibres of the iris, says of the ciliary muscle, "the fibres are seen to be loaded with roundish or oval nuclei, often precisely similar to those of the best marked examples of unstriped muscle." (*Op. cit.* p. 53.) Another very eminent microscopical anatomist has informed me, as the result of his experience, that it was easy to identify the tissue of the ciliary muscle with that of other organic muscle, but that this had not been the case with the iris. That Professor Kölliker's isolation of the fibre-cells of the muscles of the eye was in reality confined to the ciliary muscle is rendered probable by the fact that, while the whole article quoted from shows a manifest desire on the part of its author to give all available detail, yet regarding the iris he mentions no facts requiring isolation of the fibre-cells for their determination; while, on the other hand, he tells us that the fibre-cells of the iris are narrower than those of the ciliary muscle, and gives the length of the nuclei in the human iris—things which are very readily observed without isolation of the fibre-cells. His figures refer to the human ciliary muscle alone; and the only measurements given by him of muscular fibre-cells from the eye refer to the same muscle in the sheep.

It would seem, then, that with regard to the iris, Kölliker's proof falls short of the test of isolation of the fibre-cells.

* Professor Kölliker may almost be said to have been anticipated in this discovery by Mr. Wharton Jones. Through the kindness of that gentleman, I have now before me two original drawings, made by him about the year 1843, of plain muscular tissue from the small intestine. In one of these the muscular fibre-cells are characteristically shown, except that their nuclei are not apparent; one of them is wholly isolated. In the other drawing, the alternate disposition of the fibre-cells is seen after the addition of acetic acid. He also observed, as he informs me, that the unstriped muscle of the œsophagus and stomach, and also of the uterus and other organs, consisted of similar elements—a fact which he yearly communicated to his class in his public lectures at Charing Cross Hospital. He was led, from appearances in the embryo, to infer that striped muscular fibre is originally composed of similar elements, which, in the process of development, are inclosed in a sarcolemma common to many of them, and become split into fibrillæ. He thus accounted for the nuclei of striped muscular fibre, which, according to this view, are the persistent nuclei of the primitive muscular fibre-cells.—J. L.

An operation for artificial pupil, by excision, performed by Mr. Wharton Jones, at University College Hospital, on the 11th of August of the present year (1852), placed in my possession a perfectly fresh portion of a human iris, and, without knowing that Kölliker's observations had extended to the muscles of the eye, I proceeded to avail myself of this somewhat rare opportunity of investigating the muscular tissue of the human iris. On placing under the microscope, four hours after the operation, portions of the tissue carefully teased out in water with needles, I found that some of the muscular fibre-cells had become isolated, and presented very characteristic appearances. I accordingly made camera lucida sketches of the finest specimens, which are reproduced on a smaller scale in the accompanying figures. (See Fig. 1-6.) I drew the last cell (Fig. 2) nine and a half hours after the operation. And here I may mention that I have not found the muscular fibre-cells by any means a very perishable tissue. After an iris has been soaking two or three days in water, the muscular tissue of the sphincter is still quite recognizable, not only by the nuclei, but also by the individual fibre-cells.

Of the figures above referred to, (1) and (2) are examples of the most elongated cells that I saw. By reference to the scale, it will be found that the cell (1) is about 1-125th of an inch in length, and about 1-3750th of an inch in greatest breadth; while (2) is a little shorter, but of about the same average breadth. Kölliker divides muscular fibre-cells into three artificial divisions, according to their shape, of which the third contains the most elongated and most characteristic cells. Of this third division, the cells (1) and (2) are good examples, and, in fact, correspond in their measurements to average fibre-cells of the muscular coats of the intestines. The cells (3) and (4), though less characteristic in respect of their length—(3) being about 1-333d of an inch in length, and 1-3000th of an inch in breadth, and (4) 1-300th of an inch by 1-3000th of an inch, yet present the same peculiar delicate appearance and soft outline, and the same elongated nucleus of not very high refractive power relatively to the contents of the cell, but clearly defined. All these cells have the same flat or ribbon-like form which is exhibited by the cell (2) at (a), where one edge has become turned up by a folding of the cell; at (b) there seemed a tendency to transverse arrangement of the granules of this cell, which tendency is more strikingly exhibited at b and c in the cell (5), which, though not isolated, is introduced on that account. This tendency to transverse arrangement of the granules was long since noticed by Mr. Wharton Jones, as that gentleman has since informed me, and is, indeed, indicated in the drawings which are alluded to in the note above. In the cells of this iris, however, it was not by any means constant. Some of them, as (1) at (a), and (3) at (a) and (b),



exhibited something of a longitudinal arrangement of the granules, such as was noticed some years since in unstriped muscle by Mr. Bowman, who considered the rows of granules as an approach to the fibrillæ of striped muscle. These cells are more granular than I have found those of the iris of the horse to be; but I may here mention that, on comparing with these drawings the outline of a fine specimen of a muscular fibre-cell of the sphincter pupillæ of this animal, which I had sketched by the camera lucida, I find it to be almost an exact counterpart of the cell (1) as regards the shape and size of both the cell and its nucleus. The nuclei of these cells measure from 1-1400th to 1-1110th of an inch in length, and about 1-9500th of an inch in breadth. They are not, however, the most characteristic that are to be found in the iris. Fig. 6 is from a camera lucida sketch of a nucleus of the sphincter pupillæ of a horse; it measures 1-840th by 1-15,200th of an inch, and exhibits in a very marked manner the true rod-shaped figure which appears peculiar to muscular fibre-cells. On the other hand, I found some instances in the human iris of fibre-cells with considerably broader nuclei than those in the figures. The iris that yielded these cells was a blue one, apparently perfectly healthy; it was active and brilliant before the operation, which was performed on account of central opacity of the cornea, resulting from an attack of a severe form of ophthalmia fifteen months previously. I watched the case closely from the first, and there was no reason to suspect implication of the iris in the inflammation.

Having thus satisfactorily verified the fact of the existence in the iris of tissue identical with ordinary unstriped muscle, I was naturally led to inquire into its distribution in the organ; and, as this is a subject of great interest, and one about which much difference of opinion has prevailed, I may mention here the facts which I have hitherto observed, although there be not very much of actual novelty in them.

Kölliker, in the article above referred to (*loc. cit.* pp. 53 and 54), describes a sphincter and dilator pupillæ, the former "very readily seen in the white rabbit, or the blue iris of man, from which the uvea has been removed, about a quarter of a line broad in man, exactly forming the pupillary margin, and situated somewhat nearer the posterior surface of the iris." Of the dilator he says, while confessing the difficulty of the investigation, that he believes it to consist of many narrow bundles, which run inwards separately between the vessels, and are inserted into the border of the sphincter.

Bowman, on the other hand, states (*op. cit.* p. 48) that, while in some instances a delicate narrow band of circular fibres exists at the very verge of the pupil, yet, in the majority of instances, he feels *sure* that no such constrictor fibres of the pupil exist. He ascribes the contraction of the pupil to the inner part of the radiating fibres, which, he says, are joined and knotted in a plexiform manner round the pupil. It is scarcely needful to observe that such a statement from such an authority could not but go far to impugn Professor Kölliker's assertion respecting the existence of a sphincter pupillæ.

My experience, I must confess, accords with that of Kölliker, viz., that the sphincter is readily seen, while the dilator is that whose investigation alone presents very serious difficulty. In the first iris that I examined with a view to the distribution of the muscular tissue, I was struck, after removing the usual pigment, with the appearance of a band on the posterior surface of the iris, near the pupil and parallel to its margin, quite evident to the naked eye, elastic and highly extensible. This proved to be the thickest part of the sphincter pupillæ. I have examined six human irides with reference to the distribution of the muscular tissue, but in none have I had any difficulty in recognizing the sphincter, which I have also found equally distinct in some of the lower animals, viz., in the rabbit, the guinea-pig, and the horse. In man, I find it about 1-30th of an inch in width, thickest towards its outer part, where it lies nearer the posterior surface of the iris than the anterior, and thinning off towards the pupil, where it forms a sharp margin, covered apparently on its anterior aspect only by some vessels and nervous threads, and a delicate epithelial membrane, which is thrown into beautiful folds when the pupil is contracted. The fibres of the sphincter are not absolutely parallel, and this deviation is probably produced in part by the dilating fasciculi sweeping

in at various parts in a curved manner, and becoming blended with the sphincter. The reason for this supposition will appear hereafter. By teasing out under the microscope a portion of the actual pupillary margin, I found the sphincter to consist at this part of apparently unmixed muscular fibre-cells, without any connecting cellular tissue. Fig. 7 is a camera lucida outline of the edge of a portion of the sphincter so prepared, which edge is seen to be formed of projecting fibre-cells, and similar appearances may be seen with great readiness under a high power, after stroking the pupillary margin with the point of a needle. Indeed, the great facility with which the tissue may be thus broken up appears opposed to the idea of the fibre-cells being united end to end into fibres, as the description formerly given of unstriated muscle would lead one to suppose. The ends appear to separate as readily as the edges and surfaces, and it would rather seem as if the fibre-cells of a fasciculus were placed with their long axis in one direction, cohering generally to one another, but without the formation of longer fibres than each cell itself constitutes. I may here mention incidentally that in the circular coat of the aorta of the sheep, where the muscular tissue is disposed in thin layers among the elastic tissue, I have observed a distinctly alternate arrangement of the fibre-cells without any formation of fibres. Mr. Wharton Jones's drawing of alternately disposed fibre-cells in the small intestine has been alluded to in the note above. A portion of the outer and thicker part of the human sphincter pupillæ proved also extremely rich in muscular fibre-cells. In the rabbit and guinea-pig the sphincter has much the same appearance as in man, whereas in the horse it forms a wide but very flat band.

The dilating fibres of the iris present a very difficult subject of investigation.

And here I must express my belief—a belief the result of repeated and very careful observations—that the fibres described by Mr. Bowman as probably the contractile fibres of the iris are in reality the outer cellular coats of the vessels. The outer coat is very abundant in the vessels of the iris, and indeed even in the blue eye towards the sphincter quite obscures the base of many of the vessels, and prevents the recognition of their vascular character, which can only be determined by tracing them to their more external and more obviously vascular trunks. The distribution of these vessels, radiating between the sphincter and the circumference of the iris, and forming in the region of the sphincter a close and knotted plexus, corresponds accurately with Mr. Bowman's description of the distribution of the fibres of the iris. His account of the tissue of these fibres, which he considers as probably contractile, harmonizes with the characters of the cellular tissue that clothes the vessels. This is peculiar; consisting of very soft-looking fibres, whose fascicula often require the best aid of a first-rate glass to resolve them into their constituent elements; destitute apparently of yellow elastic fibres, as in the case of the cellular tissue of the uterus, but, like this, containing abundance of free nuclei, of roundish or elongated form. The fibres are completely gelatinized by acetic acid. Now such a tissue can hardly, in the present state of our knowledge, be regarded as contractile; at any rate, if we can find any ordinary muscular tissue to account for the dilating action. On teasing out portions of the outer part of the human iris, I have found long delicate fasciculi, whose faint outline, absence of fibrous character, and possession of well-marked elongated nuclei, parallel to the direction of the fasciculus, left no doubt in my mind that they were plain muscular tissue.

So far my observations regarding the dilator agree with Kölliker's, but whether or not these fasciculi are connected with the cellular coat of the vessels I have hitherto been unable to determine.

Among the lower animals, the albino rabbit and guinea-pig appeared but little suited for the elucidation of this point. I have been most successful with the eyes of a horse, where, from the thickness of the iris and the abundance of pigment (for the eyes were black ones), I anticipated but little result from my examination. Having removed the uveal pigment from behind, I found that I was also able to strip off from the anterior surface a tough membrane, a portion of which, put under the microscope, appeared to be made up of peculiar

short felt-like fibres, which were gelatinized by acetic acid. At and near the pupillary margin this membrane comes off in a continuous layer, leaving a delicate reticular structure, which contains the muscular tissue. It also contains vessels, as I proved by injection, and a black network, which consists of fine fibres, yellow, and highly refracting, more or less incrustated with pigment. I am uncertain whether or not this be a network of divided nerve-tubes with adhering pigment; in some spots the pigmental crust was absent from a considerable length of the fibres. The sphincter pupillæ is beautifully seen as a broad flat band, of extremely well-marked, unmixed, muscular fibre-cells; but crossing this at right angles are found, here and there, other flat bands of fibre-cells, which are in so thin a layer that without isolation the width of the individual cells can be seen, and they are evidently of similar dimensions to those of the sphincter. On addition of acetic acid their nuclei are also seen to be exactly like those of the sphincter. These bands divide in their course towards the pupil into several fasciculi, some of which cross over the sphincter at right angles till very near to its pupillary margin, and then seem to blend with the sphincter by making a slight curve. Most of the fasciculi, however, arch away earlier from their first course and join the sphincter in more or less oblique lines. The bands from which these fasciculi diverge may be traced away from the pupil for some distance, continuing their course at right angles to the sphincter till they are obscured by other tissues. Hence, I think the inference may fairly be drawn that these are the insertions of the dilating muscular bundles. In the horse, then, the dilating fasciculi appear to consist of precisely the same tissue as the sphincter, and to blend with it in their insertion. The flat bands of muscular tissue above spoken of seemed to have no special relation to the vessels, some of which were filled with injection. In the outer part of the iris of the same horse, I found a delicate muscular fasciculus lying near but not intimately connected with one of the radiating vessels of this part. In the human iris I have seen a muscular fasciculus, as it appeared from the nuclei it contained, crossing the sphincter at right angles for a short distance; this observation, so far as it goes, seems to imply that the same mode of insertion of the dilator occurs in man as in the horse.

The fibre-cells of the dilator appear to be held together much more closely than those of the sphincter, at least in the outer part of the iris; for I have never been able to define the individual fibre-cells in a perfectly satisfactory manner in the dilator, though I have often teased out portions of the outer part of the iris. The dilating muscular tissue is also probably less abundant than the muscular tissue of the sphincter; and this, if the fact, will help to account for the comparative difficulty in discovering it. I may here mention that both in the cat and in the rabbit, soon after death, dilatation of the pupils being present, exposure of one iris to the air caused it to contract at once, while the pupil continued dilated in the other eye, which was untouched. I do not know if this fact has been observed before, but it is interesting in two ways: first, as showing that the muscular tissue of the iris, like other muscular tissue, is obedient to the stimulus of exposure; and, second, as proving either that the sphincter is in these animals a decidedly more powerful muscle than the dilator, which is equally exposed to the stimulus; or else that the fibres of these two muscles have different endowments, as has been shown by Mr. Wharton Jones to be the case with the muscular tissue of the arteries and veins of the bat's wing; where, although the veins are muscular, and even contract rhythmically, yet the arteries alone exhibit tonic contraction when irritated by mechanical stimulus.

A rich network of extremely fine fibres, seen readily in the flat human iris viewed from the anterior aspect, appears to represent the nerves of the organ. The fibres are of a yellowish colour, and are possessed of pretty high refractive power; they present, if really nervous, a good illustration of the division and anastomosis of ultimate nerve-fibres; the smallest divisions visible under a high power are seen only as fine lines.

I have not seen any nerves in the human iris presenting the double contour; but in the iris of a cat, so fresh that the tissue contracted under the needles as I teased it out, the double contour of the nerve-tubes was already very strongly

marked, showing the existence in this animal of the white substance of Schwann in these nerves. The double contour surrounded the ends of the nerve-fibres which I supposed to have been broken by the teasing process. This last fact seemed to confirm the general belief that the double contour is a *post-mortem* effect, which, however, was in this instance a very rapid one.

I believe that a further investigation of the fresh blue iris in man, and of the horse's iris, would supply the means of finally settling the question of the distribution of the dilator pupillæ.

My engagements do not allow me to carry the inquiry further at present; and my apology for offering the results of an incomplete investigation is, that a contribution tending, in however small a degree, to extend our acquaintance with so important an organ as the eye, or to verify observations that may be thought doubtful, may probably be of interest to the physiologist.

56. *A New Method for the more exact Examination of the Eye.* By Dr. JOHN CZERMAK. (*Vierteljahrsschrift für praktische Heilkunde.* Prague. Vol. IV. 1851.)

—The internal portions of the eye appear altered in shape, distorted, and removed from their proper relative position, in consequence of the rays of light reflected from these parts passing from the denser medium of the aqueous humour of the eye into the air, and suffering refraction, which is further increased at the spherical surface of the cornea; throwing out of consideration the difference of refracting power between the aqueous humour and the material of which the cornea is constructed. The result of these influences is that the anterior chamber of the eye loses its depth, and we receive no profile of a most important space in the human eye, the seat of many serious affections, in consequence of the iris being projected forward upon the cornea, and the intervening space obliterated.

It is thus evident that we receive wrong impressions of the physiology and pathology of the eye, while the importance of the subject requires that our best exertions should be directed to the removal of these sources of imperfect and erroneous knowledge.

The great distortion of parts composing the eye takes place at the surface of the cornea, and is due to its spherical shape. This difficulty it is in our power to obviate by the use of an instrument about to be described.

Could we bring in contact with the eye any fluid of the same refracting power as the aqueous humour, and at the same time give to that fluid a plain surface, we should remove the great source of error in the investigation of the eye in getting rid of the convexity of the cornea. A fluid adapted to our purpose is fortunately at hand, of nearly identical properties in regard to its refracting power, the index of refraction for water being 1.3358, while that of the cornea and aqueous humour is respectively 1.33 and 1.338.

For this purpose, an instrument has been devised by Czermak. It is constructed of four plane surfaces, forming the bottom and three sides of a box. The bottom of this box is made of lead, having a nasal external and anterior margin at right angles, while the fourth or posterior margin is cut in such a manner as to fit closely against the lower margin of the orbit of the eye, immediately under the lower lid, in a horizontal direction; the nasal side of the box is erected upon the bottom at right angles, being also of lead, and having three margins at right angles, while the posterior is convex, and intended to fit into the internal angle of the orbit close against the nose, filling up the orbit of the eye as high as the brow; these described parts being of lead are rendered of a deep black, it having been found, upon experiment with the instrument, that the eye was projected in better relief upon a black ground than upon glass, of which these parts were originally formed. The external side is of plate glass, and long enough to project posteriorly beyond the external angle of the eye, being pressed closely against the temple. The anterior or third side is also of glass, while the fourth side is formed by the orbit of the eye, against which the instrument is firmly held by means of a ring projecting from the under plate. The sides rise sufficiently high to allow the entire eye to be inclosed in a water-bath, rendered tight, on the side of the instrument next to the eye, by the close adjustment of its margin against the soft parts sur-

rounding the orbit. It will be seen that, for use, two instruments are required, one adapted for each eye.

In making a practical application of this instrument, it is first accurately adjusted to its place, and then slowly filled with water, the eye being closed during this process, and continued so sufficiently long to accustom it to the novelty of its position. After a few moments have elapsed, the eye is slowly unclosed and yielded to our inspection, when a great change from the ordinary aspect of the eye will be observed. The iris will be seen to have receded, and to hang like a curtain suspended across the posterior part of the eye, while the cornea, in a like proportion, will have advanced, leaving thus an extensive anterior chamber open to our inspection, where before all was confusion, the parts having been distorted and blended together by the refraction previously existing at the spherical surface of the cornea. This refraction from the surface of a sphere having been removed, and a plane surface substituted in the glass plates of the instrument, the profile of the eye is restored, and its parts laid open for inspection in very nearly their true proportions. To persons unaccustomed to the contact of water with the eye considerable annoyance was at first experienced in the process of examination; this difficulty was, however, removed by Dr. Hasner and Professor Arlt, at their clinics at the Hospital of Prague, by the admixture of a small proportion of the white of egg with the water previously in use.

Let us now glance at the effect of this instrument upon the function of sight in the individual upon whom it is used. Under ordinary circumstances, the rays of light from the air are refracted at the surface of the cornea towards the axis of vision, this representing the perpendicular at this point, and the aqueous humour being the denser medium. The rays that have been here refracted are now collected by the lens, and a perfect image is formed upon the retina. Let the instrument be adjusted to the eye, and an object be placed within it, upon which the eye of the person to whom the instrument has been applied shall be directed. The eye and object being now in almost the same medium, the aqueous humour and water having a nearly identical refractive power, there is no refraction at the surface of the cornea, and the lens does not succeed in collecting the rays and forming a focus until the retina has been passed, consequently there is no distinct vision. In *Gehler's Physical Dictionary*, vol. iv., second part, p. 1384, the following formula is given of the loss of refraction experienced by the eye when under water, furnishing us with the mathematical measure of vision under the conditions just proposed. The index of refraction from air into the aqueous humour $= n : 1 = 1.337$ from water into the same $= w : 1 = 1.00075$. Assuming the semi-diameter of the cornea at $= g = 3'''.75$, the distance of the object from the eye $= d = 10'$ (the above measures being French), the distance of the focus behind the lens $= f$, we have

$$f = \frac{ndg}{(n-1)d-g} = 16'''3982; \text{ now substituting } w \text{ for } n \text{ it gives } f' = \frac{wdg}{(w-1)d-g} = -123'''043,$$

which is that rays coming from a distance of ten inches are not united into a focus by the influence of refraction; but are only so united when they shall have come from a distance of 10 inches and 3 lines. It is thus evident that the eye under water becomes very far-sighted in consequence of the refraction of the cornea and aqueous humour, which together may be taken as a lens of $16'''3982$, focal distance having been lost. Near-sighted persons, consequently, when under water see well; and it is estimated, that for a perfect eye to enjoy vision under the above circumstances, a bi-convex lens of 4.6 lines diameter, made from a substance of 1.55 refracting power, would be required.

It will be borne in mind that the conditions treated above required the eye, and also the object on which the eye was directed, to be within the water; therefore, the above deductions do not apply in the use of the instrument which we are describing. The spherical refraction of the cornea having been removed by the substitution of a glass plate, forming the front of the instrument, there remains only the small amount of refraction experienced at the surface of the glass, and that caused by the water within the instrument, while the ray is passing the contained space between the anterior plate and the eye. Although the rays, proceeding from the parts within the eye undergoing inspection to the

eye of the beholder, suffer a refraction in passing the water, as well as at the plate glass of the instrument, it is to be remembered that the distortion of parts occurs from spherical refraction at the surface of the cornea, and that the refraction of the plate glass may be entirely avoided by inspecting the eye from above, where the instrument is uncovered and water alone interposed.

Dr. Hasner, one of the editors of the *Journal of Practical Medicine*, in which the publication of Dr. Czermak describing his instrument is found, has written an article, entitled "Consideration of some of the Aids to Ophthalmoskopie," and states as follows:—

The great advantage derived from the use of the orthoscope (this name being given to Czermak's instrument) is the complete removal of the mirage produced at the surface of the cornea, permitting us to inspect the visible portions of the eye—the iris, cornea, anterior chamber, and lens, in their true position and just proportions. In a word, we are furnished, by this instrument, with a *complete profile view of the anterior chamber*, permitted to estimate the exact distance between the cornea and iris, and between the iris and lens, and thus conclude upon the nature and extent of pathological deposits. I have found the orthoscope of essential importance in the following cases, and have found my diagnosis materially assisted and improved in hypertrophy of the iris or cornea, and particularly the former. When an operation is admissible for a new pupil, I have been rendered confident by the complete knowledge of the extent of the injury, and been enabled to operate promptly and with decision. In hernia of the iris, or adhesions to the capsule of the lens, and contraction of the pupil; in prolapsus of the iris, after operations for cataract, or loss of the crystalline lens, or in exudations upon or into any of these structures; occlusions of the lens, or cataract pyramidalis, the seat and extent of these lesions are placed beyond doubt, as well as all nebula, fixed and determined in regard to their position and extent, by the orthoscope. In my wards, at the Hospital of Prague, there is a woman with the results of hydatiditis, in whose eyes, by means of the orthoscope, I am enabled to see points of exudation from the posterior surface of the cornea, extending into the anterior chamber of the eye as clear yellow nodes. These are entirely invisible by any other means in my possession than the orthoscope.

Having mentioned the advantages to be derived from the employment of this instrument, it is only just that we should enumerate the difficulties which, in our hands, have attended its use, for the double purpose of calling the attention of those persons to its defects who may be interested in having a perfect instrument, and guarding it against the accusation of those who, insensible to its real merits, might reject it, having found that it failed to meet the perfection prescribed for it in their imagination. The orthoscope is not entirely free from refraction, and therefore does not give the exact proportions of the eye mathematically considered, and is not expected to drive out of use the magnifying glass, and natural unaided eye, as adjuncts in the formation of a diagnosis. The objection made to the contact of water with the eye, I have succeeded in obviating by using water at the temperature of 90° Fahr.; but have always found great care required to prevent the patient from becoming wet upon the slightest motion, when the instrument was filled with water. To prevent this, it has been proposed to make the sides concave. Again, care must be taken, in the application of this instrument, that too much pressure be not made upon the soft parts around the orbit of the eye, producing ecchymosis, in our efforts to make the adjustment so perfect as to prevent the escape of water and the consequent annoyance of the patient. C. W.

57. *Mr. Bowman's New Operation for the Division and Removal of False Membrane or Opaque Capsule from the Axis of Vision.*—This method consists in the use of two ordinary cataract needles simultaneously. They are introduced through different points in the cornea down to the band of membrane, and their points having entered it at the same or neighbouring situations, as convenient, are then separated, tearing it across, and carrying it in two fragments to opposite sides of the pupil. Thus there is no drag put upon the vascular parts, and the only tissues touched are the cornea and the opaque membrane itself. One

needle may be made to furnish a fixed point of resistance from which the other can act with advantage. During the last ten days, this method of operating has been successfully adopted in seven instances; three of them were cases in which, after the removal of the lens by drilling, the pupil still continued closed by false membrane; and, in the other four, the sight was more or less interfered with by bands of lymph or tough opaque capsule passing across the axis of vision behind the iris.

We have selected the following case by way of illustration: William Henderall, aged 28, a soldier, was admitted as an out-patient, August 3, 1852, being totally blind from the effects of syphilitic iritis. In each eye the pupil was rather less than medium size, irregular, and completely occluded by opaque, whitish, false membrane. He stated that, two years previously, he had, in conjunction with other syphilitic symptoms, suffered a very severe attack of inflammation of his eyes, for which he was six months under care in a military hospital. When discharged, he was much in his present condition, and had ever since been quite blind.

Mr. Bowman performed, on the right eye, the operation of drilling, which, after a month had elapsed, was repeated.

On October 15, there was a small open point in the centre of the opacity, which was perfectly black, and through which he had perception of light, and could distinguish large objects. In the hope of still further improving his sight, it was determined to attempt to get rid of a larger portion of the opaque membrane. Two cataract needles were accordingly introduced into the eye from the opposite sides of the cornea, and passed down in such a direction that their points met in the centre of the false membrane. On separating them, the latter at once tore vertically down, and its two halves, being carried one to each side, were lost behind the iris, leaving the pupil perfectly clear.

October 23. The inflammation which followed the operation has been but very slight, and affecting only the conjunctiva. The man has now an oval pupil of fair size, quite clear, and black. He can see with tolerable distinctness, and his sight is daily improving. Mr. Bowman intends before long to perform a similar operation on the other eye.—*Med. Times and Gaz.* Oct. 30, 1852.

[We believe that if Mr. Bowman will use a straight needle, properly constructed, and with a long cutting edge, he will be able to accomplish with one needle all that he has effected in the above cases with two, and subject the patient to only half the risk of injury to the eye.]

58. *Amaurosis from Concussion. Treatment by Mercury. Recovery.*—The following case of this is reported in the *Med. Times and Gaz.* (Sept. 4, 1852):—A man, 28 years of age, florid and robust, who had a week before received a very severe blow over the left eye from a cricket-ball, was admitted into St. Bartholomew's Hospital, under Mr. WORMALD, July 26, 1852. He was knocked down and much stunned at the time, and, on recovering his consciousness, was very sick. On opening the eye, no change in its structure was apparent, but it was totally blind. The parts above and below the orbit were lacerated and much bruised, and for several days the swelling was such as to preclude the further examination of the eye. When able to do so, however, he found that the loss of vision still continued. At the time of admission, the surrounding tumefaction had nearly subsided, the conjunctiva and sclerotic were much congested, the pupil dilated to its utmost extent, and perfectly motionless. When the sound eye was closed, he could but just distinguish light from darkness.

R. Hydr. chlorid. gr. ii, pulv. opii gr. $\frac{1}{2}$, ter die sumend. Milk diet.

July 31. He can see much better with the injured eye than before; the pupil is rather less dilated, but still quite motionless. That of the sound eye can be made to contract by suddenly admitting light to the other. He has no pain in the part, or headache.

August 1. Ptyalism. His vision is better than yesterday, but he has severe diarrhoea, with colic.

To suspend the pills and take pulv. aromat. \mathfrak{ss} ter die.

2d. The pupil of the left eye is much less dilated, but still all but motionless. He can see with tolerable distinctness.

5th. He can now read large print, and, excepting a slight appearance of mist which surrounds all objects, his sight is as good as formerly. The left pupil now contracts sluggishly when stimulated, but it is still somewhat larger than that of the sound eye. The congestion of the tunics has disappeared.

He is discharged.

All who have had much experience in ophthalmic diseases will be aware that it is very common for cases similar to the above to terminate in permanent blindness of the injured eye. In this instance, the man, in all probability, owes the restoration of his sight to the treatment adopted; and another case is afforded in support of the practical rule, that, when blindness or impaired vision result from concussion of the eyeball, the rapid and free exhibition of mercury should never be neglected.

MIDWIFERY.

59. *Case of Arm-Presentation successfully conducted without Turning.*—It has been an axiom in obstetrics to turn in every case of arm-presentation where turning is practicable. Dr. R. G. MAYNE records (*Lond. Journ. Med.* Oct. 1852) the following case in which he departed from this rule, and with a happy result.

"On the 20th June, 1852, I was summoned to attend Mrs. H. on occasion of her first accouchement, and reached her house at six o'clock A. M. She was of sallow complexion, a small, lean figure, and thirty-six years of age. She had had pretty smart pains since four o'clock P. M., of the previous day, and the membranes had given way, with considerable discharge of the waters, an hour before my coming. I found her walking about her bedroom, her progress arrested every now and then by regular and evidently powerful uterine contractions. After a little while spent in persuading her to submit to examination, I ascertained that the os uteri was dilated to the extent of a half-crown piece, and that the case was one of arm-presentation, my finger-point at once encountering several objects, which gradually became distinguishable into the fingers of a minute left hand, resting in close contact with the acromial portion of the shoulder of the same side, and the broad surface of the corresponding scapula. The occiput, and the back of the child, were thus directed to the abdomen of the mother; its head above, or resting upon her *right* ilium, as she lay, in the usual posture, on her left side.

"The discovery was far from agreeable, having particular duties to attend to for the day, which the nature of the presentation, the stature, aspect, and age of Mrs. H. allowed little expectation of my being able to perform. The pains continuing vigorously recurrent, I did what I could to promote dilatation by repeatedly passing the finger, with some slight degree of pressure, round and within the tense rim of the os uteri, during the contractions. By seven o'clock A. M. such progress had been made, that the child's hand and greater portion of the forearm had entered into the vagina, the upper, or humeral portion, and arm proper itself, being detained by the cincture, formed by the cervix uteri, binding down and hindering the passage of the elbow.

"In accordance with early precept and past practice, I contemplated the operation of turning as the orthodox expedient to be adopted, and commenced by introducing the fingers and thumb of my left hand, conically packed together, into the vagina, which, from the rigidity of parts, would admit no more, even after some perseverance. I persisted in trying to urge my way, though every movement—even of a finger-joint—provoked a more energetic resistance. I also made some attempts to push the child's hand and arm up into the womb, with the view of securing greater facility in preparing for the contemplated operation of turning; but each expulsive effort sent them forth again as before. Could nothing be done to alter this state of things? This question presented itself over and over again, as with all my efforts I could make no progress towards foot-version; and I resolved to try.

"The idea of the practicability of returning the arm, and of exerting a repress-

ing force upon a part of the presentation, according to circumstances, so as to convert the case into one of natural labour, had formerly occurred to my mind when engaged on one or two similar occasions, and I had then endeavoured to act upon it, but found, to my disappointment, that matters resumed their faulty condition so soon as such endeavours ceased. In those cases, however, the protrusion of the hand and arm was much more complete, when I was first called to them, and had existed for a longer period, than in the present instance. Here, there were circumstances of one kind which seemed favourable to the prosecution of the idea; thus, the presentation had but partially entered or dipped into the cavity of the pelvis, and, as yet, the hand and part of the forearm only had escaped beyond the constricting band of the cervix uteri. But there were also others, as the discharge of the liquor amnii about two hours before, the patient being a primipara, her constitution and age, which inclined to the reverse. The latter considerations, however, were equally inauspicious as to any facility to be hoped for in performing the operation of turning; and, therefore, with my hand firmly wedged in the vagina the while, I, after repeated though hasty and anxious deliberation on all these points, decided on the propriety of making a persevering effort to alter the character of the presentation.

"Having quite failed in carrying my hand beyond the second joints of the fingers and thumb, every endeavour to do so causing painful and loudly complained of increase of the contractions, I extricated my thumb altogether from its confinement, by which the fingers were now enabled to pass in a flattened form of the metacarpus, as far into the passages as the junction of the thumb with the fingers at its first joint would permit. By this means, I pushed the child's hand and arm (in reference to the position of the mother) *back*, or (in relation to the erect posture) *up* towards the fore part of the body of the womb, till they rested above the pubic portion of the pelvis, to which point my own fingers also reached, and steadily retained them there, by uninterruptedly bearing upon the latter, or rather upon the arm proper, a little above the elbow, for one hour and a quarter. During this space, the pains, which were uncompromisingly withstood, so far as they could affect the arm and parts against which it was urged, regularly recurred, and slowly advanced the labour, so that the descending presentation began to press uncomfortably on my already cramped fingers.

"The woman had for some time complained of my *pushing back the child* at every pain; and, in no gentle tones, now ordered me to desist altogether, at least for a time. Her friends, impressed with some alarm by her vociferations, added their remonstrances to the same effect. Therefore, having carried out my intention as far as was possible, I withdrew my hand, resolved to abide the issue, without any further active interference. Leaving her to herself for a short time, in which several pains occurred, I was much gratified and encouraged, upon a digital examination, in finding that the arm had not again descended, and that the labour was making perceptible progress. Deriving relief and confidence from these two facts, yet conceiving that whatever course the case should take, I might now safely leave for an hour, in order to fit myself for the day's engagements, I retired at half-past eight A. M.

"At half-past nine A. M. I again saw my patient, and really felt overjoyed to find a perfectly natural presentation. At ten minutes past ten A. M. I delivered her of a well-formed male child at the full time, with only a slight swelling of the left hand and forearm, who is yet alive, if not to *tell* the tale, at least to afford evidence of the practicability of acting successfully upon my idea. The mother, in common parlance, had not a bad symptom; and is now in her accustomed health."

60. *Supposed Extra-Uterine Abdominal Pregnancy; Natural Delivery.*—It is ever wise not to be hasty about operating, and especially not to have recourse to the Cæsarian section before it is clearly shown that the patient must sink if this formidable operation be not performed. Here is a case which gives this rule a world of strength.

A woman, twenty-nine years of age, was admitted on the 18th of April, 1852, into the Hôpital Beaujon, at Paris, under the care of M. HUGUIER. The prac-

itioner who sent her considered that she was affected with hydatid cyst of the liver. M. Huguier, who never attempts the diagnosis of abdominal tumours without inspecting the genital organs, was struck by the purple colour of the vulva and the vagina, and asked the patient whether she were not pregnant. Being a widow, she at first denied it; but after a little pressing, it turned out that five or six months previously she had been ill-used by strangers.

Although the colour of the vagina pointed to pregnancy, the other symptoms of gestation were certainly of a strange and obscure character. The abdominal tumour was situated exactly under the hepatic region, more prominent towards the umbilicus than in the vicinity of the groin, and so high up indeed that the hand pressing upon the abdomen reached the promontory of the sacrum easily. The body of the uterus could not be made out by the finger passed into the vagina; but the os tincæ might be felt on the left side far above the pubes. On the right side, however, and posteriorly to the vagina, an angular body was protruding, which felt like an elbow or a heel, and this was still more palpable through the rectum. Some movements were detected in the body of the child, which was seemingly lying in the right hypochondrium, and the sounds of the fetal heart were plainly heard.

M. Huguier communicated the case to the Surgical Society of Paris, asking his professional brethren to see the patient, and to give their opinion on the propriety of operative interference. A committee was appointed, and M. Danyau reported upon the case. The committee were unanimous as to the existence of extra-uterine gestation, but thought that no operation should be attempted until labour had commenced. Subsequently, however, some doubts arose in M. Danyau's mind, and he examined the patient again with Professor Dubois. The latter considered that the very absence of the cervix, which had led to a suspicion of abdominal gestation, made him think that the pregnancy was quite normal, but that the body of the child had perhaps lodged in the posterior portion of the uterus, as it has been known to happen with the anterior part, so that a limb of the child might be tilted forwards, and be retained in a kind of *cul-de-sac*.

It was, therefore, again resolved that the pains of labour should be waited for; and these having begun on the 1st of July, M. Huguier sent for some of his colleagues, and especially for M. Roux and M. Danyau. These gentlemen met, and preparations were made for the operation; but before transferring the patient to the operating theatre, M. Roux made a vaginal examination, and stated that he felt something very much like a head. The presence of this portion of the child was soon ascertained by the other surgeons; the pains became very strong, and in one hour the woman was delivered of a child which lived only two hours. A vaginal examination was made the next day; but the body of the uterus was not found any more than before delivery, and the cervix was as high as it had been found on former occasions. These circumstances led M. Huguier to suppose that the shape of the uterus must be of a very unusual kind.—*Lancet*, Nov. 20, 1852.

61. *Induction of Premature Labour by the Method of Professor Kiwisch*.—Dr. TYLER SMITH records (*Lancet*, Oct. 2) a case of deformed pelvis, in which he successfully induced premature labour by the process of Professor Kiwisch, of Würzburg. This method, Dr. Smith says, is devoid of many of the disadvantages and of all the dangers of previous operations. It consists in directing a stream of water from a height, by means of a syphon, continuously upon the os uteri. Kiwisch recommends the use of warm water; but Dr. Smith knowing, from experience in cases of hemorrhage, the increased efficacy of the alternation of hot and cold temperatures in causing uterine contraction, he determined to try the effect of alternating the hot and cold douche. Accordingly, at 9½ A. M., September 1, a piece of India-rubber tubing, about eleven feet long and half an inch in diameter, was connected with a straight tube from an injecting apparatus, five or six inches in length, the latter forming the uterine extremity of the syphon. A vessel containing two gallons of water, of about 110° Fahr., was placed nine or ten feet from the ground, the patient being placed in an empty hip-bath. The proper end of the tube was now passed into the vagina,

and directed towards the os uteri, where it was held steadily. After exhausting the tube, the other extremity was placed in the warm water. The stream immediately began to flow with considerable force against the os uteri, and continued until the whole contents of the vessel had been discharged. Two gallons of cold water were then poured into the vessel, and discharged in the same manner. The time occupied by the whole douche was from twenty minutes to half an hour, the patient only complaining of discomfort when the hot and cold currents first began to run. During the after part of the day she complained of dysuria and occasional pains in her back.

Sept. 2d.—One P. M. The douche was again applied in the same manner and quantity.

She had labour-pains from half-past twelve until four. At nine o'clock, the douche was repeated. Two o'clock P. M.: Has had irregular uterine pain since the douche in the morning. On examination, the os uteri was felt dilated to the extent of half a crown. Douche repeated. Nine P. M.: Had considerable uterine pain for half an hour after douche. Douche repeated.

4th. One A. M. Has had powerful uterine pains since last douche, and the child was born about half-past one A. M., or about sixty-four hours after first application of douche.

"The time," Dr. Smith remarks, "between the first application of the douche in this case, and the completion of delivery, was less than frequently occurs in cases of puncture of the membranes. But it has been objected to the douche, by those who have used it on the Continent, that some women are less susceptible of its influence than others, and that the susceptibility of the same woman varies in different pregnancies. I suspect this variation may be obviated by performing the operation, when the time can be selected, at the eighth or ninth catamenial date, and by increasing the energy of the douche by the alternation of temperature."

62. *Induction of Abortion in the Vomiting of Pregnant Women.* By MM. DUBOIS and STOLTZ.—During a recent discussion at the Académie de Médecine, M. P. Dubois stated the results of his experience in relation to obstinate vomiting in pregnancy. In proof that this is oftener a more dangerous occurrence than is usually supposed, he stated that, in the course of thirteen years, he had met with twenty cases in which it has proved fatal. That obstinate vomiting is but the exaggeration of the natural sympathetic vomiting of pregnancy, and not due to any special lesion, is proved by the facts that at the autopsies nothing is found, and that when the process of gestation becomes arrested, whether spontaneously or artificially, the vomiting is ordinarily put an end to, although the woman may not be delivered until several days after, of a dead child, and may yet die of the effects of what she has already undergone. M. Dubois refers to several cases in which the women, apparently at the point of death, were saved by the *spontaneous* death of the fetus, this being expelled only some time afterwards. In respect to the question of how far *artificial* interference is attended with the same result, he furnishes notes of the four cases in which he has employed it. Three of these died and one recovered—this last being added to other cases on record, making the number of recoveries he is aware of certainly seven, and probably nine. In all the cases, however, whether fortunate or not, the vomiting was suspended by the operation. The difficulty is, indeed, to fix the *period* at which this should be resorted to; for it is the natural desire to delay this as long as possible, which leads to the fatal result—the woman dying, in fact, from the exhaustion and prolonged abstinence which the vomiting has induced, prior to the operation for arresting it being undertaken. M. Dubois lays it down as a rule, never to perform it when the signs of extreme exhaustion are present, as evidenced by considerable loss of vision, cephalalgia, comatose somnolence, and disorder of the intellectual faculties. On the other hand, we should also abstain from operating when the vomiting, though violent and frequent, still allows of some aliment being retained; when the patient, though wasted and feeble, is not obliged to keep her bed; when the suffering has not yet induced intense and continuous febrile action; and when other means still remain untried. In the first case, we

should not save our patient, but perhaps accelerate her death, and bring discredit on the operation; while, in the other, we should sacrifice a pregnancy that might have gone on to the full time. It is, therefore, the intermediate period that should be chosen, and this is characterized by the following signs: 1. Almost incessant vomiting, by which all alimentary substances, and sometimes the smallest drop of water, are rejected. 2. Wasting and debility, which condemn the patient to absolute rest. 3. Syncope, brought on by the least movement, or mental emotion. 4. A marked change in the features. 5. Severe and continuous febrile action. 6. An excessive and penetrating acidity of the breath. 7. The failure of all other means. But even within this period, which is of variable duration, the opportune moment must be chosen. This seems to have arrived, when the inefficacy of the most approved treatment has been proved, when fever is found to persist, and the debility and wasting of the patient are making sensible progress. The attendant should now declare that the operation is indicated, leaving to the patient and her friends the duty of deciding upon its adoption.

Professor STOLTZ, of Strasburg, has published a highly interesting communication upon this subject, in which he also states his belief that vomiting during pregnancy is much oftener fatal than is usually supposed. He relates four cases, from among others, that have come under his own notice. In three of these death occurred, and life was saved by the operation in the fourth, although the case seemed hopeless. M. Stoltz lays great stress upon the operation being performed *in good time*, because, if we wait until the effects of the sympathetic reaction constitute in themselves a serious disease, the evacuation of the womb does not induce a cessation of these, and may, in certain cases, even hasten death—life, so to say, hanging upon a thread. It is undoubtedly difficult to say, *when* the moment has arrived that we can no longer hope for benefit from nature or therapeutical agents. But may not the same observation be made with regard to many important surgical operations? It is true, that neither spontaneous nor artificial abortion always saves life in these cases; but the former usually occurs only when the woman's powers are hopelessly exhausted, and the pain and discharge consequent on the delivery may expedite her end—the same result not being infrequently seen in severe fever. Some practitioners have expressed themselves very feelingly against sacrificing the child in these cases; but there is a great inconsistency on the part of those who do so, and who still advocate the operation in the case of narrow pelvis. A woman who has undergone artificial abortion for obstinate vomiting, may hereafter (and these cases mostly occur in primiparæ) give birth to a living child, which can never be the case in one who has so narrow a pelvis as to call for the induction of abortion rather than of premature labour.—*Brit. and For. Med.-Chirurg. Review*, Oct. 1852, from *Gazette Médicale de Paris*, No. 23.

63. *Stethoscopic Sign of Separation of the Placenta*.—In our number for July, 1852, p. 263, we noticed a supposed stethoscopic indication of the separation of the placenta pointed out by M. Caillant. Prof. SIMPSON, of Edinburgh, in a communication to the Edinburgh Obstetrical Society (Jan. 14, 1852), gave various reasons for dissenting altogether from the explanation of the sound offered by M. Caillant. Dr. Simpson believes the sound is produced by the mere physical compression of the placenta, as it is being expelled from the uterus; and it could be imitated with a placenta, after its expulsion from the body, by pressing the placenta through an aperture such as that of the cervix uteri.—*Monthly Journ. Med. Sci.* August, 1852.

64. *On unavoidable Uterine Hemorrhage*.—M. DEPAUL read an elaborate paper upon this subject at the Académie de Médecine, in which he defended at great length the views held by MM. Stoltz and Dubois, upon the tardy development of the lower segment of the uterus. Our space admits only of the notice of some of the more practical parts of the paper. M. Depaul is of opinion that the attachment of the placenta to the lower segment of the uterus is of much greater frequency than those authors admit who have only noted the cases in which it has been found inserted over the orifice itself; and he considers Lacha-

pelle's statement, that the majority of cases of uterine hemorrhage occurring after the sixth month are due to faulty insertion of the placenta, to be correct, when so understood. He does not regard the *diagnosis* of the occurrence by the thickness and softness it imparts to the lower segment of the uterus, as being so easy as stated, when the cervix is long and closed. Nor is the absence of *ballotement* at all conclusive, as he has perceived it in several of these cases. He considers that the hemorrhage oftener shows itself in the course of the eighth or ninth month, than in the sixth or seventh, as stated by some. Even when the cervix is effaced, and the os opened, experienced persons have sometimes mistaken coagula, or excrescences of the cervix, for the placenta. M. Depaul considers that the *prognosis* as regards the mother has been exaggerated, and that with due care the mortality, stated by Simpson at one-third, might be much diminished. It is more serious when the placenta is inserted over, in place of near, the orifice, and in the earlier period, when the cervix is hard and closed. He agrees with Lachapelle that more than half the children are lost, especially when it is considered that many of those born alive are so before their time, and exhausted by the disturbance of the placental communication.

In the *treatment* of these cases, (1.) when the hemorrhage is slight, and the os closed, and no uterine contractions are present, he recommends the employment of the usual general means to arrest hemorrhage, such as posture, opiates, acidulated drinks, &c., and small hæmostatic doses of ergot. When (2.), with the same conditions of the uterus, the hemorrhage is great and increasing, besides the above means, he advises plugging the vagina. This may act by favouring the coagulation of the blood, and the obliteration of the vessels left open by the detachment of the placenta; and by hastening the advent of labour and the dilatation of the orifice. This last end is not always attained; for cases have occurred in which the plug has been applied for twenty-four or thirty-six hours, with the effect of arresting the hemorrhage without producing any modification in the cervix. When, in spite of the plug, the bleeding still continues, in part internally, and in part externally, and the woman appears in any danger, we should rupture the membranes; and if such partial emptying of the uterus is not attended with prompt improvement, delivery should be forced, even if multiplied incisions of the cervix uteri are necessary for this purpose. When (3.) the hemorrhage is slight, and has commenced at the full period of pregnancy, or when repeated hemorrhages have induced premature labour—a certain degree of dilatation being present—if the loss is very moderate, we may order rest and other general measures, and give ergot to hasten the labour. When the dilatation has become considerable, we should rupture the membranes, especially if the hemorrhage, without being great, has been of long continuance or frequent repetition, so as to have materially damaged the health. The same course is justified in the interest of the child, the life of which will be risked by its prolonged detention in the uterus after a considerable separation of the placenta. It is in this case that obstetric auscultation becomes so useful; and when this shows the child's life to be in danger, the forceps, or version, should be had recourse to, even when the dilatation is not so great as in other cases would be deemed desirable. When (4.) the os is more or less dilated, and the hemorrhage too serious to admit of temporizing, if the membranes are still intact, the dilatation not being quite complete, these should be ruptured, and the ergot given in preference to using a plug. M. Depaul has, however, the greatest objection to perforate the placenta itself, at the risk of inflicting injury on some vessel that might prove fatal to the child. Even in central insertion, whenever possible, he detaches an edge of the organ to get at the membranes. In central insertion, too, he would employ the plug as a dilator. On account of the danger the child incurs, he likewise objects to Simpson's plan of prior detachment of the placenta. When, in spite of the discharge of the waters, the hemorrhage continues, or the child's life is found to be endangered, we must deliver; and, in these cases, the somewhat forcing delivery is preferable to the employment of the plug, lest even a moderate amount of uterine hemorrhage prove too much for the exhausted powers of the woman, or a too long delay prove fatal to the child.

It is an error to suppose that the woman is always safe when delivery has

been accomplished; for she sometimes sinks from subsequent hemorrhage. This occurrence is explained by the special vascular distribution at the lower segment of the uterus, and the less disposition this part has to contract. To secure due contraction, the ergot is the best means; and perhaps it should always be given in these cases immediately after delivery.—*Brit. and For. Med.-Chirurg. Review*, Oct. 1852, from *Bull. de l'Académie*, vol. xviii. pp. 849-874.

65. *On the Continuance of Lactation during the Progress of Diseases.*—Dr. RÖSER states that the results of his observation during thirty-two years, have quite convinced him that the routine practice of desiring mothers to discontinue suckling when they become the subjects of serious disease, is erroneous, the ill-effects of the milk upon the infant having been ridiculously exaggerated. He has already called the attention of the profession to this matter, in an essay on typhus, published ten years since, and all subsequent experience has only confirmed him in his views. He objects to the cessation of suckling for any other cause than local inflammation of the breast, the resolution of which it may prevent, and the cessation of the secretion, which, however, is often due to the neglect in continuing to apply the child: and he cites cases in which the continuance of the child to the breast, in apparently hopeless affections, was attended by the best results. He remarks upon the inconsistency in arresting a secretion which is so powerful an agent in abstracting the proteine-compound from the blood, while, at the same time, by exciting other excretions, and employing various antiphlogistics, we endeavour to diminish the fibrinous and albuminous elements of the fluid. The effect of suppressing pathological secretions in causing or aggravating disease is admitted, and yet we suppress a normal one, which is exerting an important derivative action on existing disease, and has established the habit, on the part of the system, of requiring such a drain. In the various epidemics of typhus witnessed by Dr. Röser, he has found the continuance of suckling, while the milk remains, of great service in the prevention of bronchitis and pneumonia, which are the usual causes of death; and in inflammatory diseases, he recommends the practice even when collapse has occurred. Even when a woman is suckling much beyond her time, the child should not be taken from her during an attack of inflammation.

Dr. Röser strongly objects to the advice so commonly given to women suffering from, or threatened by *tubercular disease*, to abstain from suckling. He regards it as one of the best of preservatives, as also a means of prolonging life when cavities are formed; and he states that he is in possession of many cases justifying this opinion. Suckling, too, pursued within normal limits (which vary in different women, but average nine months), is always advantageous in pure neuroses, including hysteria itself. In the same way is the numerous class of affections benefited dependent on a stasis of the blood, and marked by chronic inflammatory action, and the generation of adventitious productions.—*Brit. and For. Med.-Chirurg. Rev.* Oct. 1852, from *Froriep's Tagesberichte*, &c. Nos. 444 and 446.

66. *Epidemic of Puerperal Gangrenous Vulvitis.* By M. CHAVANNE.—During the early part of the cold January of 1850, several of the puerperal women at the Charité of Lyons were attacked, three or four days after delivery, with vomiting and diarrhoea, or with febrile paroxysms and abdominal pains, or slight hemorrhage. These symptoms were followed, in twenty-six cases, by lassitude or prostration, and lowness of spirits, and by the development of oedematous redness of the vulva. In a few cases, the disease did not extend beyond this stage, active febrile symptoms becoming, however, developed; but in the great majority, pultaceous plates, resembling Delpech's pulposus form of hospital gangrene, formed on the interior of the vulva and vagina, closely adhering to the mucous membrane. Although their extension became limited in a day or two, they were not separated by the inflammatory process until the end of the first week, or during the second; small, superficial, suppurating wounds being left at the points they occupied, which usually soon healed up, though occasionally degenerating, and becoming covered with the same pultaceous mass. In four of the twenty-six cases, the disease extended to the uterus,

and the patients died, having presented all the symptoms of intense puerperal fever, the gangrenous condition of the uterus becoming complicated with peritonitis. No cause could be assigned for the development of the epidemic; both the general sanitary conditions of the establishment, and the prior state of health of the patients, having been satisfactory. In twenty of the cases, the labour was natural, the forceps, however, having been applied eight times; and while the affection seized some of the patients who had very easy labours, others of the inmates, whose cases required active interference, entirely escaped. Besides the four cases above mentioned as having proved fatal, three others of the twenty-six died from metro-peritonitis, without extension of the gangrene. The other nineteen recovered, the gangrene usually soon yielding to tonic regimen, and the local use of the strong muriatic acid. A very similar epidemic was observed at Lyons in 1815; and another of the same character has been recently witnessed in Paris.—*Brit. and For. Med.-Chirurg. Review*, Oct. 1852, from *Gazette Médicale*, No. 16.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

67. *Infanticide, and what may be confounded with it.*—The frontal and parietal bones are the only ones which Dr. WEBER (*On the Strength of the Skull*) has seen fissured and fractured by the act of parturition. According to the greater or less extent of the fracture, and particularly the distance of separation between the edges of the injured bone, so is the amount of injury to the vessels of the locality of the fracture. Rupture of small ones always occurs, as is proved, by the most delicate fissure being indicated by a red streak. The periosteum is generally elevated by extravasated blood, and there are marks of suggillation from effusion into the cellular tissue of the scalp. In these cases, internal cephalhæmatoma may occur. But the extravasations here alluded to must be distinguished from those which follow rupture of the longitudinal sinus, and of the larger cerebral veins. It is true that both forms may be present; but, according to Dr. Weber, the latter are not the consequences of the fracture, namely, “a too violent forcing of the bones over each other.” BEDNAR, after referring to the fissures and fractures, dwelt on at some length by the former writer, remarks that “in the cranial bones of new-born children chinks are sometimes observed running from the surface for several lines deep into the bone, generally in a somewhat oblique direction. Their origin we cannot explain, as, from the yielding character of the bone, we are unable to produce them in the corpse by stroke or pressure.”—*British and Foreign Medico-Chirurg. Review*, July, 1852. T. R. B.

68. *Whether a Blow on the Head, producing Fracture of the Skull, ever causes IMMEDIATE Death.*—Dr. LENTE, in a communication on the Statistics of Fracture of the Cranium at the New York Hospital (*New York Journal of Medicine*), after analyzing 117 cases, of which 21 recovered and 96 died, remarks: “In no case did death follow the receipt of the injury, until after the lapse of some hours, even in the most desperate cases; nor does it appear to be possible for an ordinary blow on the head, producing fracture of the skull, to cause immediate death. In a recent criminal trial of great interest, it will be recollected that at one stage of the proceedings it was much discussed whether a blow upon the head with an ordinary weapon capable of inflicting death could produce this result instantaneously. Many eminent surgeons were examined, and the general impression was that the thing was exceedingly improbable, if not impossible, and the question was thus decided.”—[See this *Journal* for April 1852, p. 579.]

Professor F. H. Hamilton, of Buffalo, in his table of Fractures of the Cranium, the cases amounting to 33, of which 21 recovered and 12 died, according to the reporter, arrives at a similar result.—*Buffalo Medical Journal*, September, 1852. T. R. B.

69. *Vomiting produced by the Application of Galvanism.*—We read the annexed curious statement in the *London News* of the 25th September, 1852:—

"In the case of a woman named Maning, brought up to the Marylebone Court from the infirmary of Marylebone, charged with having attempted to commit suicide by swallowing a quantity of bitter almond oil, it was stated that a *new galvanic process* had been used in aiding her recovery.

"Mr. Broughton (the magistrate) asked in what way it acted. 'Did it cause her to vomit?'

"Mr. Mercer (relieving officer). 'It causes the stomach to resume its muscular action, when a *patient vomits the whole of the poison*. It is considered a more efficacious application than the stomach-pump. It was the first time it has been used at the infirmary.'

"Mr. Broughton. 'Is it a painful operation?'

"Mr. Mercer. 'No sir; it produces a slight shock to the system.'

"Mr. Broughton. 'How long was it before the battery was applied, after her admission?'

"Mr. Mercer. 'Immediately: when brought in, she was in a state of paralysis; and she would have died except for the prompt attention of the medical officers, who succeeded in restoring her to consciousness.'

"The defendant stated that she had swallowed a six-penny (about 12 cents) worth of the poison, having been led to the act by domestic troubles."

T. R. B.

70. *On Suicide by Strangulation without Suspension.* By N. JACQUIER. Paris & Troyes, 1851: pp. 31.—This little pamphlet contains the history of eighteen cases of suicide by strangulation. The conclusions at which M. Jacquier arrives are: 1. That strangulation, whether voluntary or not, may be performed in three ways—by complete suspension, by incomplete suspension, and without suspension. Under these three circumstances, death is determined by apoplexy, by asphyxia, or by syncope; frequently, by all these causes combined. 2. The possibility of suicide by strangulation without suspension is now generally admitted, but is regarded as of rare occurrence, and consequently gives rise to suspicions of homicide. 3. The infrequency of this mode of suicide is not attributable to the difficulty of effecting it, but to the general belief of *its difficulty*.—*Medical Times and Gazette*, July 24, 1852.

T. R. B.

71. *Camphor in Cases of Poisoning by Strychnine.*—The following is adduced by Dr. PIDDUCK as a proof that camphor is an *antidote*. We are disposed as yet to doubt this; but are equally satisfied that it is a valuable *remedy*:—

J. W., pianoforte-maker, a weakly man, of intemperate habits, accustomed to work in a hot workshop, and to exposure to cold to and from work, was the subject of severe attacks of rheumatic gout. After one of these, he was suffering under dyspepsia, neuralgic pains, and general debility. For the relief of these symptoms strychnine was prescribed, in the dose of a *sixteenth* of a grain. three times a day. By mistake, at the chemist's, the grain of strychnine with sugar was divided into six instead of sixteen powders.

The first dose, taken in the evening, produced severe twitchings of the muscles; but the second dose, early in the morning, threw him into violent convulsions. The messenger who came said he was dying. Immediately, on discovering the mistake and witnessing one of the frightful paroxysms, Dr. Pidduck prescribed twenty grains of camphor in six ounces of almond mixture, one-fourth to be taken every two hours. The first dose so completely quieted the convulsions that there was no need of a second.—*Lancet*, July 24, 1852.

T. R. B.

72. *On the Qualitative Separation of Arsenic, Tin, and Antimony.* By GEORGE F. ANSELL.—The method proposed by the author consists in dissolving the mixed sulphides in nitro-hydrochloric acid, and pouring the solution into an apparatus in which hydrogen gas is generated by the usual way. The evolved gases are first passed through a wash-bottle containing acetate of lead, to remove any hydrochloric acid or sulphuretted hydrogen, and are then conveyed into a test-tube half filled with strong nitric acid. The nitric acid solution

obtained after the gases have passed for about a quarter of an hour, is evaporated to dryness, and the residue, which will contain the arsenic originally present, partly in the state of arsenic (acid?) and partly of arsenious acid, and the antimony in the state of antimonic acid, is exhausted with warm water, which takes up the first two and leaves the last-named substance. The tin remains in the vessel in which the hydrogen was generated. These are severally identified by the application of the appropriate tests.—*Pharmaceutical Journal*, July, 1852. T. R. B.

73. *Remarkable Case of Suicide by Hanging.* By F. C. WEBB, London.—On the 18th of July, 1852, I was called, in conjunction with Mr. Roberts, to J. M., who was supposed to have committed suicide. We found him quite dead, the hands cold, and *post-mortem* ecchymosis commencing on the inner side of the thighs. He was lying supine along the foot of the bed, with his legs in a semi-flexed position. Above the *pomum Adami* was a dusky red line, about three quarters of an inch in width, which extended on each side, following the base of the jaw, and taking a somewhat curved direction from the angle of the maxilla towards the back of the mastoid process, above and behind which, on each side, it terminated.

The body presented no other indications of injury, with the exception of a contused state of the integuments over the right eye and the right elbow. From the character of these bruises, we supposed them to have been received two or three days before, and they were accounted for by a fall which deceased had met with during the previous week.

The examination of the body justified the belief that the man had died from hanging; and from the absence of marks of violence about the hands and other parts of the body, it seemed probable that it was a case of suicide rather than homicide.

Suspended from one of the posts of the bedstead was a leathern strap, which corresponded in width with the mark on the neck. This strap was passed over the upper end of the bedpost, and fastened to it at about ten inches below its top by being twisted and knotted round the pole. From the latter point it depended in a loop of one foot nine inches in length, whilst from the loop to the bedstead, on which deceased was lying, the measurement was one foot nine and a half inches.

Evidence was given at the coroner's inquest that the deceased was found lying upon his abdomen on the bed, with his head in the loop, the face looking downwards. He was quite dead when he was thus discovered. From the investigation, no doubt was entertained as to the case being one of suicide; the man had been intoxicated for three days previously to his death; and from other circumstances, the jury came to the conclusion that he was of unsound mind at the time of the occurrence.

This case is peculiar, from the mode in which death was effected. It was not an ordinary case of hanging; the weight of the body was principally borne by the bedstead; the pressure of the head and upper part alone resting on the loop. The mode of fixing the ligature was remarkable, inasmuch as a large loop was employed instead of the noose, which has more frequently been found. Although it must doubtless have required a strong effort of the will to keep the head in a depending position until the supervention of asphyxia, yet a consideration of the insidious and rapid manner in which death takes place, the quickness with which insensibility comes on, and the few symptoms of which those persons were conscious who have been resuscitated, diminishes our sense of wonder at the determination of the unfortunate suicide.—*Med. Times and Gaz.* August 7, 1852. T. R. B.

74. *Poisonous Qualities of the Kernel of the Apricot.*—At Arles, a child ate two or three apricots; but, not content with this, also took the kernel inclosed in the nut. Very soon after he was seized with convulsions, and died in spite of every attention.

These kernels have a peculiar flavour, which is ascribed to the presence of prussic acid. But until the present time, the quantity of it has been considered

so small that not the slightest danger has been apprehended from eating one or two. Whether the fatal result was in this particular instance owing to something peculiar to the child, or to some morbid change in the fruit, cannot now be ascertained. But the true inference is to forbid the use of them, at least to children.—*Gazette des Hôpitaux*, from the *Journal de Chimie Medicale*.

T. R. B.

75. *Wounds and Injuries of the Bladder*.—Solutions of continuity in the bladder, from punctured and gunshot wounds, are almost invariably fatal by the supervention of peritonitis; but a considerable period sometimes elapses before the symptoms set in. The most common form of rupture of the bladder, however, is from external violence, when the viscus is distended with urine. Such an accident is not necessarily fatal, as the readers of this journal are aware, from our report of Mr. Rynd's case, in a recent number; but as it almost always occurs where the serous membrane covers it, the issue is generally unfavourable. Mr. HIRD related an interesting case at the Medical Society of London, which is quoted by Mr. Coulson, to show that the patient may walk several miles after complete rupture, and for a time exhibit no symptom which attracts more than ordinary attention. Cases of spontaneous rupture from over-distension are rather examples of sloughing than of anything else, the openings being generally numerous and small, and the texture of the bladder softened. Rupture during labour may occur from manual violence, or from the pressure of the child's head, and is, on the whole, not a very uncommon accident; such cases ranking among the most distressing conditions with which we have to do.—*British and Foreign Medico-Chirurgical Review*, July, 1852.

T. R. B.

76. *Sir Benjamin Brodie on the Operation of Poisons*.—This distinguished individual has recently reprinted several of his original papers in a volume form, London, 1851, under the title of *Physiological Researches*. We commend the following from the *British and Foreign Medico-Chirurgical Review* of July, 1852, to the notice of students of the *materia medica* as well as of medical jurisprudence.

T. R. B.

"The other two Memoirs, from the *Philosophical Transactions* for 1811 and 1812, contain the account of numerous valuable experiments made to determine the manner in which various poisons, vegetable and mineral, act upon the animal body, and produce death. The whole of this subject, at the period in question, was involved in great obscurity; and Sir B. Brodie's experiments were among the first which threw the light of physiological science upon its numerous and complicated problems. We need scarcely inform our readers of the rapid progress which has been made since that period, in our knowledge of the *modus operandi* of poisons, or enter into the satisfactory evidence we now possess, that, in by far the larger proportion of cases, the effects of poisons upon the system at large, or upon remote organs, and even upon the parts to which they may have been themselves applied, are due to their reception into the current of the circulation. Of this general fact, some of the most valuable data were furnished by Sir B. Brodie's experiments; especially by those which proved that the local action of arsenic on the stomach is equally developed, when it is introduced into the circulation through some remote part of the body. He now seems ready to admit that this principle is capable of being extended also to many poisons, which have a powerful action on the nervous centres, and which he formerly believed to 'produce their effects through the medium of the nerves, independently of their being absorbed into the circulation;' but still, he remarks that 'other facts may be adduced, which render it doubtful whether the whole of the phenomena admit of this explanation, at the same time that the analogy of what happens under other circumstances justifies us in regarding the agency of the nerves in transmitting the influence of certain poisons to the vital organs as no improbable hypothesis.' In this view we fully concur; and, considering that the question cannot be better stated than it has been by Sir B. Brodie, in his Additional Notes, we extract the following summary of the grounds on which he rests it:—

'1. The rapidity with which the poison operated in some of my own experi-

ments, in those of Dr. Christison made with the active principle of hemlock, and of M. Magendie and Mr. Taylor, with the hydrocyanic acid, is even greater than can be well accounted for otherwise, however rapid the circulation, and however easy the transmission of the poison may be through the substance of the mucous membranes and the tunics of the bloodvessels.

'2. In the first of my experiments on alcohol, the introduction of two drachms of proof spirit into the stomach of a cat immediately affected the nervous system to such an extent as to cause total insensibility with laboured and stertorous respiration; nevertheless, after the lapse of eight minutes, these symptoms began to subside, so that presently the animal was able to stand and walk. In another experiment, in which as much as an ounce and a half of proof spirit had been injected into the stomach of a full-grown rabbit, the insensibility which it occasioned began to subside at the end of forty minutes. It is easy to understand that the effects of the impression made by the poison on the sentient extremities of the nerves, like those of a concussion of the brain, should thus subside, but it does not seem very probable that so large a quantity of spirit should have been absorbed into the circulation and then ejected from it in so short a space of time; nor does this at all correspond with what happens where intoxication is gradually induced in the human subject, and where there can be no doubt as to the alcohol having entered the circulation.

'3. That poisons may have a local action on the nerves, so as to affect distant organs, independently of their admission into the blood, is proved by the well-known fact to which I have adverted elsewhere, of the pupil of one eye becoming dilated in consequence of the application of the extract of belladonna to the conjunctiva of the same eye, or the neighbouring part of the integuments, while the pupil of the other is wholly unaffected by it.

'4. There are numerous examples of mechanical impressions on the sentient extremities of the nerves, the influence of which can be propagated only through the medium of the nerves themselves, affecting the brain so as to occasion a temporary suspension of its functions. Every practical surgeon will recall to his mind numerous instances of a common, simple, and bloodless operation being followed by syncope, and even by stupor, with dilatation of the pupils, and stertorous respiration, and continuing for several minutes; and there is, *a priori*, no evident reason why the impression made on the nerves by so powerful an agent as the hydrocyanic acid, or the essential oil of bitter almonds, should not do in one case what a slight mechanical injury does in another.

'5. In another publication, I have referred to another class of cases, the phenomena of which cannot be well explained except by attributing them to an influence transmitted through the medium of the nerves. Thus, in one instance, acid in the stomach caused a severe pain in the foot, which was immediately relieved by a dose of alkali neutralizing the acid. In another instance, a violent pain in the ankle, with inability to move, subsided immediately on the rejection of some indigestible food from the stomach.*

'6. I have elsewhere adverted to the analogy which exists between the operation of the nervous power and that of electricity. The influence of volition is transmitted instantaneously from the brain to the muscles, and impressions on the sentient extremities of the nerves are communicated to the brain, the nerves themselves answering the same purpose as the conductors of an electric apparatus. The agent in both instances is invisible, intangible, and known only by the effect which it produces; and these things being considered, it seems to be not contrary to what analogy would lead us to expect, that in like manner as the electric force generated by chemical decomposition at one end of a metallic wire directs the needle of a telegraph or causes the explosion of gunpowder at the other extremity, so a substance such as the hydrocyanic acid, which powerfully affects the vital properties of the part to which it is applied, should be capable, through the medium of the nerves, of disturbing and even of arresting the functions of the brain.'—(pp. 129–132.)

"To this we may add, that it has always appeared to us that the effects of *shock*, as propagated not only from the nervous centres to the system in gene-

* Lectures, illustrative of certain Local Nervous Affections, p. 11.

ral, but also from remote parts of the system to the nervous centres, and thence to the heart, are quite conclusive as to the transmissibility of an influence, which we may call "anti-vital," along the nerve trunks. Of such an influence we see the results in the extreme prostration which immediately follows the rupture of internal organs, extensive burns of the surface (especially in children), the action of corrosive poisons on the stomach, &c.; and there is to us a strong *a priori* probability, therefore, that the peculiar influence of certain poisons, whose special action is exerted on the nervous system, should be received and transmitted through it, as that of other poisons is through the circulation.

"We believe that to Sir B. Brodie is due the merit of having first suggested artificial respiration as a means of reanimation after apparent death under the influence of narcotic poisons; and with an extract from his Additional Notes on this subject, we shall close our present review of his physiological labours; again thanking him for the opportunity which he has given us, by the republication of these memoirs, of reverting to topics of such interest, and of profiting by his more matured thoughts upon the subjects of his early investigations.

The success of the treatment depends, 1st, in cases of poisoning, on the dose of the poison, there being a limit to the period during which life can be maintained by means of artificial respiration; 2dly, on the inflation of the lungs being carefully made;* 3dly, on the animal being kept in a temperature of not less than eighty-five or ninety degrees of heat of Fahrenheit's thermometer. This last precaution is, of course, a matter of greater importance where the animal is of a small size (as in the case of a cat or rabbit), than where it is larger; still, it is not to be neglected even in the case of the human subject; otherwise, the animal heat gradually diminishes until it reaches that point at which the action of the heart can no longer be maintained, when we have the singular result of an animal perishing from cold in the ordinary temperature of the atmosphere. I have not myself known the circulation to continue where the temperature of the interior of the thorax has been below seventy-eight degrees of Fahrenheit; but an experiment is related by Dr. Chossat, in which it had fallen still lower.

'It is needless to multiply examples of the kind. I am, however, induced to record the following experiment, as it derives a peculiar interest from the circumstance of the use of ether and other anæsthetic agents having been lately introduced into the practice of surgery.

'February 5, 1821.—A guinea-pig was placed under the bell-glass employed in my experiments on animal heat. The bell-glass was left open above, while a small retort containing sulphuric ether was adapted to the tube communicating with the lower part of the apparatus. A lamp was placed below the retort, so as to make the ether boil. The vapour of the ether thus became mixed with the air in the bell-glass, a portion of it becoming condensed on the inner surface of the latter, and on that of the wooden stand on which it was placed.

'In two minutes after the experiment was begun, the animal moved about briskly, as if affected by the first symptoms of intoxication. In two minutes more he lay on one side in a state of insensibility, but still breathing. He continued in this state, breathing at longer and longer intervals, for six minutes, when respiration had entirely ceased. After two minutes more, he was removed from underneath the bell-glass. Though he was apparently dead, the heart could be felt beating feebly through the ribs. An opening having been made in the trachea, the lungs were now artificially inflated. Only a few seconds had elapsed before there was a spontaneous effort to breathe, and the pulsations of the heart were more distinct. When the artificial respiration had been kept up for some minutes longer, it was discontinued. The animal now breathed naturally, and gave some slight indications of sensibility when touched. This was followed by a tremulous motion of the limbs, and soon afterwards by complete recovery.'" (pp. 142-145.) T. R. B.

77. *On Poisoning by Sulphate of Iron.* By M. ORFILA.—M. Orfila observes,

* On this subject, I have offered some observations elsewhere. See Lectures, illustrative of various Subjects in Pathology and Surgery, p. 7.

that prior to Smith's and his own experiments in 1815, the salts of iron were supposed to be almost innocuous; and when these experiments proved their poisonous effects on dogs, the point was still regarded by many as undecided as respects man, although M. Orfila has fully demonstrated, that all substances which prove poisonous to the dog, do so also to man. Several trials before the French tribunals have, of late years, decided the actual occurrence of such poisoning. In the most recent one, M. Orfila has been consulted in consequence of the incompetency of the provincial *experts*; and he has drawn up an interesting report of the case, embracing some incidental questions. The present case was that of a child aged fifteen months, who died after purging and vomiting a black fluid. On opening the body, ten days after burial, the stomach was filled with a greenish fluid, and the vessels of the lungs and brain were gorged with black blood. M. Orfila detected sulphate of iron in notable quantities in the portions of the abdominal contents forwarded to him. He does not think that signs of inflammation of the alimentary canal were not present because the *experts* did not find them. They are so in most cases of this poisoning; but the thick coat of greenish varnish has to be cut through before the state of the membrane can be ascertained. Absence of inflammation is, however, no proof that poisoning may not have occurred, as the sulphate of iron acts on the economy by producing disorders in it which are the results of absorption, rather than by causing local inflammatory action. In commenting upon the defective procedures of the country *experts*, who, at first, were unable to detect the iron at all, and then employed a process which confounded the accidental with the normal iron of the economy, M. Orfila observes, that this last is always to be carefully avoided in judicial investigations. When copper, lead, or ferruginous salts exist in the alimentary canal as a consequence of poisoning, we have only to treat the canal by means of very dilute muriatic or acetic acid, at a moderate heat—these acids dissolving the metallic substances sought for, without attacking any portion of those metals that form part of the organization. To obtain these last, we must treat the viscera by more energetic agents, or incineration.

M. Orfila took this occasion to represent to the court the reasons why *experts* could not reply to the question so often put to them, as to whether a *sufficient quantity of poison to cause death had been administered*; and the danger, in reference to the suppression of crime, the insisting upon such a question gave rise to. The chemist may only be able to detect a thousandth or the twenty-thousandth part that has been administered, when the poison has been evacuated or excreted, and the discharges have not been preserved. If all the poison has been thus expelled, he may not be able to detect even a trace; and yet although, in the one case, what he has detected has been insufficient to cause death, and in the other he has found none at all, so that the jury may pronounce that no poisoning has occurred, yet has the person died of such poison. To ascertain the whole amount of poison that remains in the body, the entire frame would have to be submitted to analysis, which is clearly impracticable; while calculations of the quantity existing in the whole body from that which has been obtained from a part, would give rise to the greatest errors, inasmuch as the poison is not equally distributed over the frame, some portions of this absorbing and retaining much more of it than others. Different processes, also, employed by the same hand, obtain very different quantities; as does the same process wielded by chemists possessed of different degrees of expertness. The French law, too, does not require any decision on this point, as it punishes the *attempt* to poison by any substance that may cause death—this applying, not to the proportion employed, but to the substance used.—*Annales d'Hygiène*, tom. xlv. pp. 337–382. T. R. B.

78. *On Poisoning by Tartaric Acid.* By MM. DEVERGIE AND ORFILA.—Employed as an *expert* in a case of poisoning by this substance, M. Devergie furnishes in this paper a minute account of the analyses and experiments he undertook for the elucidation of the subject. He comes to the following conclusions as to the action of this substance on the animal economy: 1. Tartaric acid is a poison capable of producing death in a short time. 2. It acts energetically in an inverse proportion to the quantity of water in which it is dissolved. 3. It induces death rather by asphyxia, than by the local lesions it causes. 4. The

asphyxia is produced by the absorption and passage into the blood of the poisonous substance. 5. It exerts a special influence on the lungs, in which it gives rise to partial congestions, approaching to hepatizations, which are disseminated amidst the healthy tissue. 6. It exerts a special influence on the blood, seeming to augment its fluidity, while it modifies its nature; so that the blood assumes, when exposed to the air, a bright red-currant colour, which it communicates to the different organs, in proportion as it is freely distributed to them. It remains fluid for an extremely long period. 7. This poison is one, therefore, which chiefly acts by absorption. 8. It nevertheless exerts a corrosive action on the tissues; but this would seem to be only a secondary cause of death.—*Annales d'Hygiène*, tom. xvi. p. 443.

In the succeeding number of the *Annales*, M. Orfila severely criticizes the foregoing, declaring that the chemical processes employed were faulty, and that the *post-mortem* appearances observed are uncharacteristic. Phosphoric acid, cream of tartar, neutral tartrate of potass, tartrate of soda and potass, or even an excess of wine, will furnish the same reactions as those which M. Devergie so obtained; while Orfila's experiments on animals, show that poisoning by tartaric acid is unattended by any special symptoms, or peculiar *post-mortem* appearances, the ecchymosed appearance in the lungs, and the currant-red colour of the blood, being also found in animals that had died from the influence of other poisons. From his own researches, M. Orfila concludes: 1. That tartaric acid is absorbed, since he has detected it in the blood and liver of dogs poisoned by it. 2. That no conclusion as to poisoning having taken place from free tartaric acid, can be drawn, unless this substance has been obtained from the fluids of the stomach, the blood, or the liver, by alcoholic and not aqueous treatment (that employed by Devergie); water being able to dissolve the tartrates, which act upon acetate of lead and sulphuretted hydrogen just as tartaric acid does. Pure alcohol does not sensibly dissolve these tartrates. T. R. B.

79. *On the Deprivation of the Noxious Power of Poisonous Mushrooms.* By M. GÉRARD.—M. Gérard has recently exhibited before a committee of the Paris Council of Health the complete innocuousness of the most poisonous species of mushroom, after being subjected to a very simple mode of preparation. The experiment was exhibited in his own person, after both he and all the members of his family had made similar trials with the like result. Two of the most poisonous forms were chosen: the *amanita muscaria* and *venenosa*, of Peirson; and the trial was pronounced quite satisfactory. The preparation, principally consisting in suitable maceration, has indeed been long practised to some extent by the country people. The researches of Letellier have also shown that the principle which he calls *amanitine* is very deliquescent, and is remarkably and almost exclusively soluble in water. Alcohol only takes it up by reason of the small quantity of water which it contains; and when *amanitine* renders sulphuric ether yellow, this is owing to imperfect rectification. M. Gérard directs that, to every five hundred grammes of mushrooms cut up into a medium size, a litre of water, slightly acidulated by two or three spoonfuls of vinegar (or, if nothing else is at hand, gray salt), should be added. If water alone can be obtained, this must be renewed once or twice. In this fluid the fungi are to be macerated for two entire hours, after which they are to be washed in abundance of water. Next, they are to be put into cold water and boiled for half an hour, after which they may be taken out, washed, dried, and used as food.—*L'Union Médicale*, 1851, No. 148. T. R. B.

80. *On Spontaneous Human Combustion.* By M. DEVERGIE.—MM. Bischoff and Liebig, employed as *experts* in the recent celebrated case of the Countess of Görlitz, not only declared that *her* case presented an example of *post-mortem* burning, which proved to be true, but took the occasion absolutely to deny the trustworthiness of any of the cases of spontaneous human combustion on record. This position M. Devergie combats, founding his argument upon the consideration of a case which occurred to himself, and of the various accounts of other examples that have been recorded by trustworthy persons. Although the term *spontaneous* is not a strictly correct one, inasmuch as there has always been an immediate cause of the combustion, he retains it for want of a better; and he

considers the leading characteristic of these cases to be, the *absence of harmony between the mass of the parts burned and the feebleness of the agent of combustion*. He enumerates the following peculiarities, as exemplified by most of the facts on record: 1. The extent and depth of the burns, as compared with the feeble proportion of combustible matter employed in their production. 2. Indulgence in spirituous liquors by the victims. 3. The far greater frequency of the occurrence in women, and especially in old women. 4. The presence of an accidental determining cause. 5. So complete is the combustion in some cases that nothing but the ashes remain, and these are always of the same fatty soot. 6. The combustion, while acting on a mass of flesh and fat has usually spared highly inflammable bodies in the vicinity. 7. The flame when seen has always been described as of a bluish colour, and as inextinguishable.

M. Devergie points out how these circumstances differ from those observed in the countess's case, and in death from ordinary combustion. When this extends from the clothes to the person, very large superficial burns are produced, which, from their very size, prove fatal; but there is no instance of bodies becoming completely carbonized or reduced to the condition in which they are found in these cases. It is true, that when the amount of combustible body exists in due proportion to the body to be burned, we may see such effects produced; but the *absence of this relation* is the prime characteristic of these cases. A mere lamp, or a hot cinder, suffices; while, in the experiments made upon the countess's body, one hundred and twenty-five pounds of wood had to be used. The other capital point is, the *isolation of the combustion amidst combustible bodies*, the most inflammable substances remaining uninjured. In the countess's case, the floor and chairs, even at a distance, were burned. In M. Devergie's case, complete combustion of the body had taken place in a little wooden room five or six feet broad by eight or nine feet long, and yet two muslin curtains at the window were uninjured. In all the cases, too, *abuse of alcohol* is mentioned; and, although Bischoff laughs at this, as a mere invention of the persons of the vicinity, for the purpose of pointing a moral, it is too particularly specified in all the cases to admit of doubt. And it is to this abuse of alcohol, that M. Devergie is disposed to attribute the production of the phenomenon. The quantity excreted by the urine and sweat is probably not in due relation to that imbibed; and a vital modification is impressed upon the tissues, by reason of which they become endowed with a greater combustibility, either mechanically, or by the transformation of the absorbed alcohol combined with the tissues into a new substance.—*Annales d'Hygiène*, tom. xlv. pp. 383-431.

T. R. B.

81. *Strangulation. Longitudinal Rupture of Trachea. Suicide, or Homicide.*—The prisoner, a female aged fifty-one, was indicted for the murder of her mother-in-law. The body was first seen by a witness named Bird. He found the door of the cottage open, and went in. The body was stiff and cold, in a sitting position on the floor (in a corner), with the back against the front wall of the cottage, the left side against a corner cupboard, and tape round the neck. The other end of the tape was fastened to a hook in the cupboard, and the head was inclined away from the cupboard, so that the tape was on the stretch; but the loop round the neck of the deceased was so loose that the witness could easily insert his fingers between it and the neck. The legs of the deceased were stretched out on the floor perfectly straight; her hands were lying in front of her, also perfectly straight; and her clothes were down over her legs, not at all disordered. The witness easily broke the tape with his hand; but when he had done so, the body remained still in the same position. It was, however, removed before the *post-mortem* examination took place; and, upon that examination, a contused wound was discovered upon the right eyebrow; and under the skin, on the upper part of the head, on the right side, there were a few spots of extravasated blood, which might have been occasioned by a slight blow. A spot of blood was found on the wall above the head of the deceased, and one or two on the floor. The face was swollen and discoloured. There was a mark round the neck as if produced by the tape; but the remarkable feature of the case was that the trachea or windpipe was ruptured longitudinally on the right side, up and down. This being the condition in which the deceased was found,

the impression at first was that she had committed suicide, and on the part of the prisoner the same suggestion was still made.

Dr. Alfred Taylor, the lecturer on medical jurisprudence at Guy's Hospital, was examined, and stated that, in his opinion, the facts proved were inconsistent with the supposition that the deceased committed suicide. The rupture of the trachea longitudinally was a most extraordinary circumstance. He had never known an instance of it. It was impossible that the tape round the neck of the deceased could have done it. He had examined the tracheas of five persons who had died under the hands of the public executioner, and in no instance had this occurred. He could only conceive such a rupture being produced by the application of lateral force compressing the whole tube. If a ligature was drawn tightly round the neck, and a stick introduced to act as a lever, the trachea might possibly in that way be thus lacerated. Dr. Taylor also stated that the effect of strangulation was a spasmodic contraction of the hands and limbs, which might be restored to their natural position by another person, if it was done immediately after death.

Upon cross-examination, Dr. Taylor said that there existed considerable differences of opinion in the medical world upon suicidal and homicidal cases. In the case of the Duke of Bourbon, there was a difference of opinion; but the majority believed that he destroyed himself. There were on record instances of suicide by strangulation effected in almost every possible attitude, and after the person had inflicted on himself other acts of violence. If the rupture of the trachea had been produced by lateral pressure on the throat, he should have expected to find some external marks of that violence.

Two other medical gentlemen were examined, Mr. Sharman, of Daventry, and Mr. Nash, of Northampton. They made the *post-mortem* examination, and the former, although he was not aware that the longitudinal rupture of the trachea was at all remarkable, was of opinion that, taking all the circumstances into consideration, the deceased could not have committed suicide. The latter appeared inclined to think it possible that she might, but expressed himself with great hesitation and uncertainty.

The chief proofs against the prisoner were that she had been seen about the house of the deceased near the time of the supposed murder; and one man swore that, about a quarter past eleven, he heard groans and a scuffling, as of several persons in the house; and three women, who just about the same time were standing at a distance of two hundred yards, heard cries of "murder" proceeding from the cottage. At a quarter to twelve, the prisoner was seen to enter her own house. She had then no shawl or apron on; her gown was torn in the gathers, and in the afternoon she changed her dress, and put the one which she had taken off into the washtub. Small spots of blood were afterwards found on her apron and shawl, and some tape was found in a drawer in the prisoner's house. A mallet was also produced, with regard to which the prisoner had said that that was such a thing as was likely to have given the blows to the deceased. In order to show a motive for the commission of the crime, it was proved that, upon the death of the deceased, the prisoner and her husband would become entitled to a sum of £900 odd, and that, shortly before the day of the death, they had been pressed by their landlord for payment of arrears of rent.

The Lord Chief Justice summed up the evidence, and the jury, after remaining out about a quarter of an hour, returned a verdict of guilty.—*Monthly Journal of Medicine*, September, 1852; from the *Legal Examiner*. T. R. B.

82. *Life Insurance*.—In the Court of Exchequer—*Duff and others* (directors of the Commercial and General Life Assurance Company) v. *Gant*—an important decision was given by the judges, as to the obligation of a party assuring his life to disclose any important facts, respecting which he may not be questioned.

The cause was tried before Mr. Baron Maule, at Guildhall, and on the material issues the verdict was found for the defendant. The action was on a bill of exchange; but, in point of fact, the action arose on a disputed policy of assurance.

Mr. Edwin James now moved for a rule *nisi* for a new trial, on the ground of misdirection. The learned counsel briefly stated the facts of the case, which appeared to be as follows: The plaintiffs are the directors of the Commercial

and General Life Assurance Company, and the defendant was the surety of a person named William Crabb Knight, now deceased. In the year 1850, Knight borrowed the sum of £200 from the above company, and, as security for the same, insured his life to the amount of £600, and also gave the personal security of the defendant, Mr. Gant. The policy of assurance was effected on the 22d of May, 1850, and on the 15th of May, 1851, Knight, being insane at the time, committed suicide by drowning himself. The assurance office then brought an action against Mr. Gant for his promissory note of £200. The defendant set up against this claim the policy of insurance, which the company declared to be void, on the ground that the deceased had fraudulently concealed from them the material facts of his mother and brother having died insane. The question proposed by the office, on which this was grounded, was the following: "If aware of any disorder or circumstance tending to shorten life, or to make an assurance more than usually hazardous?" For answer to this the deceased had written, "Don't know of any." At the trial, one of the issues, as to the fact of the deceased's mother and brother having died insane, and of his having been aware of this at the time he effected the insurance, was found for the plaintiffs. Mr. James now contended that it was material that the deceased should have communicated to the office the manner in which his relations had died.

The Lord Chief Baron. It was not necessary that a man should voluntarily state the circumstances attending the deaths of his relations. Suppose a man was in the habit of bathing twice a day, and that he was not aware that such a practice tended to shorten his life. The non-statement of this fact would not render his policy invalid. He himself had known a gentleman, living in the neighbourhood of Cambridge, who had bathed throughout the year; but he was so far from believing that the habit was injurious, that he imagined he was gaining strength and vigour from it.

Baron Alderson. I believe, for instance, rowing matches at Oxford and Cambridge tend to shorten the lives of the undergraduates. (Laughter.)

The Lord Chief Baron. Surely a man is not bound to tell an assurance office that he is in the habit of hunting every day during the season, although it might break his neck some day.

Mr. James. No, my lord. It was proved, in this case, that Knight, immediately before his death, filled up a proposal for an assurance, and that he then voluntarily stated that his mother had died insane at 73 years of age, and his brother at 45.

Mr. Baron Platt. That tends rather to show the *bona fides* of the deceased, when his attention was drawn specially to the manner of their decease.

The Lord Chief Baron. If the proposal does not require any information on gout, it is not necessary that a man should state that his father and mother were afflicted with that disease.

Mr. James. He is bound to state the existence of hereditary disease.

The Lord Chief Baron. No, if you do not put any question about it. It was held by the celebrated Browne, the founder of the Pneumonia-system, that if Peter inherits his father's estate, he will also inherit his gout, but not otherwise. Suppose an office asks whether a person has a desire to go up in a balloon. (Laughter.)

Mr. James. But the desire to go up in a balloon is not hereditary. (Laughter.) If it was known that a man had a monomania for going up in balloons it would render the insurance more hazardous.

The Lord Chief Baron. Suppose a man were in the habit of sleeping without a nightcap? (Laughter.)

Baron Alderson. Or with a nightcap? (Renewed laughter.)

The Lord Chief Baron. You must not only be aware of the habit, but that it tends to endanger life.

Baron Alderson. I think you are bound to communicate to the office the evidence of any present disorder; but it is not necessary to go into circumstances which might possibly tend to shorten life.

The Lord Chief Baron. Suppose a man about to effect an assurance lived in the neighbourhood of Holmfirth, he would not be bound to state that as a circumstance tending to endanger life. Rule refused.—*Atlas* (London newspaper), Nov. 13, 1852.

T. R. B.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Splint for Fracture of the lower end of the Radius. By ISAAC HAYS, M. D. [With two Cuts.]—In October last, I was called to a lady who had fractured the lower end of the radius of her left arm, and not being able at the moment to obtain one of Dr. Bond's splints (see this *Journal* for April, 1852, pp. 566-72), I resorted to a temporary contrivance, intending to apply the former at the next dressing. The substitute, however, was found to answer so well that I was induced to continue its use, and, as it is composed of materials which can always be readily procured, is much lighter than Dr. Bond's splint, and will, I think, fulfil every indication quite as well, I am induced to describe it.

It was made as follows:—

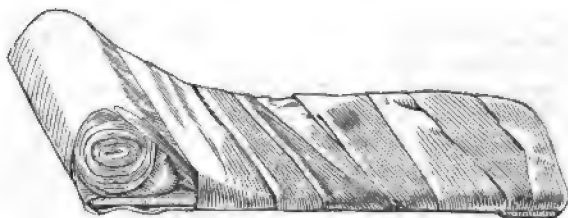
The cover of a cigar-box was cut into the shape represented in Fig. 1.

Fig. 1.



Over this, was laid a double layer of cotton-wadding. A strip of muslin, six yards long and three inches wide, was rolled up to within two yards of its end, and then a pin placed at each edge, not opposite to each other, but one a little nearer to the end than the other, so that the roll made, with the straight piece, an angle, the same as that made by the bottom of the splint with its front edge. The roll was then placed on the end of the splint, the strip carried over the back, then turned over the front, over the roll, and again to the

Fig. 2.



back, when the angle gave to the strip a direction which carried it over the edge and in front of the roll to the opposite edge. The strip was then continued over from edge to edge until the whole splint was covered. (See Fig. 2.) The apparatus was then completed. The roll represents the palmar block in Dr. Bond's splint.

The splint is bound to the arm with a simple roller-bandage.

As represented in Fig. 2, the splint is designed for the left arm; it can be arranged for the right arm by placing the roll on the opposite side.

Traumatic Tetanus relieved by the Inhalation of Chloroform. By THOS. T. RUSSELL, M. D., Pattersonville, La.

It has been remarked, and with much truth, that there is perhaps no disease which has been treated by so great a variety, and even contrariety, of remedies as tetanus. The stimulating, antiphlogistic, narcotic, and antispasmodic plans have each their advocates, and instances of success are quite as numerous under one plan of treatment as another. It is difficult to draw any certain inference in regard to the real utility of any particular mode of practice, as every plan occasionally succeeds, and every plan more often fails.

This difficulty will exist so long as we continue to manage cases by way of example, and remain in obscurity as to the proximate and essential cause of tetanic affections.

The history of the following case furnishes additional evidence of the correctness of the above remarks; and I report it, not that I am prepared to throw any light upon its pathology, or so credulous as to believe that we have found an effectual remedy, but merely to induce others to make further trial of a remedial agent that promises at least to be of some use in this formidable disease.

John —, a seaman, set. 35, native of the Sandwich Islands, of robust and vigorous constitution, applied to me on the 19th of May, 1851, with a severely lacerated wound of the great toe, caused by the fall of a heavy piece of live-oak. After dressing the wound he returned to his vessel, and I heard nothing more from him until the 5th of the following month (June), when I was summoned to attend him by a fellow sailor, who reported him to be suffering with cramps. I immediately recognized the so-called cramps to be tetanic spasms. The muscles of his face, neck, abdomen, and inferior extremities were permanently rigid, and violent spasms recurred every few minutes. The spastic rigidity of the muscles was constant and not alternating with relaxation; there were stiffness and soreness about the muscles of the jaw and neck; difficult deglutition; and sudden contractions about the scrobiculus cordis; the pulse was 98; respiration somewhat hurried; perspiration cold, and the bowels constipated. He was troubled also with a collection of tenacious phlegm in the throat, and copious eructations of a white, ropy fluid. This was relieved by an emetic.

Gave ol. ricini, ʒij; spts. terebin. ʒij; and ordered five grains of opium to be given every two hours. In the course of a few hours the oil and turpentine produced one large evacuation. The wound, which up to this time had been totally neglected, was found black and very much swollen, the inflammation extending over the whole foot and ankle. It was kept moist by the frequent application of spts. turpentine.

Upon inquiry, I learned from the men on board at the time, that John was taken about 12 o'clock on the third night (May 21) after receiving his wound, while at his post (the helm), and finding him pretty much in his present condition, was carried by them on the forward deck, in which situation he remained until I saw him, then fifteen days, without attention, and exposed to the vicissitudes of the weather, and the great annoyance of mosquitoes and gallinippers.

June 6. Great rigidity of all the voluntary muscles, with the exception of those of the arms, which have been from the commencement of the attack entirely free from spastic action. Spasms recurring every few minutes. Patient complains very much of the pain at the pit of the stomach, and begs for something to put him to sleep, declaring that he has not slept for two weeks. Ordered five grains opium to be given every hour, and a blister two inches wide to be applied to the whole length of the spine.

Night. Has taken sixty grains of opium during the day. Blister drew well; applied sulph. morphia six grains to the denuded surface.

7th. Opium increased to ten grains every hour.

8th. Opium continued ten grains every hour.

9th. Has taken over 300 grains opium, and no sensible effect whatever observed from its administration. Thinking the opium might possibly have remained unchanged in his stomach, I substituted the sulph. morph., giving one grain every hour.

10th. Sulph. morph. increased to two grains every hour.

11th. Has now taken largely over a half drachm of morphia. It produced no alleviation of his symptoms; not even a disposition to sleep. Nervous stimulants were given.

30th. Up to this date arterial, nervous, and cerebral stimulants, together with nervous sedatives, epispastics, and cold baths, have been fully and fairly tested, and were productive of not the least sensible good effect. His bowels were occasionally opened by oil and turpentine, and his strength was supported by nourishing fluids, which were allowed *ad libitum*. Inflammation of the foot nearly subsided, and the wound healing rapidly. Tetanic inflexibility of the body undiminished. Spasms recurring every fifteen or twenty minutes. The patient being in a very irritable state, I ceased to annoy him by any further exhibition of medicine; and, having all sources of annoyance removed, enjoined perfect quiet.

July 6. Finding all the symptoms increased in severity, and the patient praying for sleep, averring that he has not slept for six weeks, I again commenced with the morphia, giving him from three to five grains every hour.

7th. Slept none last night after having taken thirty-five grains sulph. morph. Gave large dose of oil and turpentine.

Noon. Medicine operated freely. Spastic action of the flexors still equalizing that of the extensors. Pulse small and irregular; respiration laborious; exacerbations recurring oftener, and becoming fearfully violent. At this juncture I determined to try chloroform. Accordingly, placing a drachm upon a piece of sponge, I applied it to his nostrils, and after some difficulty, which was increased on the part of the patient by physical excitement, succeeded in inducing complete anæsthesia. He was kept in this state one hour.

Evening. Finding for the first time a perceptible amelioration in his symptoms, I again put him in the anæsthetic state, and kept him in this situation several hours.

Night. Gave sulph. morphia one grain.

8th. Slept well last night; relaxation of the muscles general, but slight. Inflammation of the foot subsided; wound nearly closed.

9th. Can turn himself partially in bed; improving rapidly. No further treatment, except an occasional dose of morphia (half grain) at night. In one week, he was walking about town, and looked apparently as well as ever.

Bean in the Trachea—Tracheotomy—Cure. By MOSES C. HORT, M.D., of Perkins, Erie County, Ohio.

An only son of Mr. Lyman Taylor, of Perkins, Erie County, Ohio, whilst playing with some white beans, one accidentally slipped into the trachea at 7 o'clock in the morning of the 15th of May. He was immediately seized with symptoms of strangulation, pain, dyspnoea, retching, &c., but upon my arrival, about an hour after the accident, I was informed that the child had previously undergone the domestic treatment of being shaken by the heels, and douched with cold water upon the spine, whilst the fauces were titillated with

a feather, and a lady present averred that she had felt the foreign body, and pushed it down the throat; that it had been swallowed with immediate relief to the child, which was afterwards very playful, and had partaken heartily of a bowl of bread and milk. I therefore proceeded to visit other patients without examining the child, who was again seized with cough and dyspnoea shortly after my departure. Upon returning at 11 o'clock A.M., the patient appeared to be in considerable pain with rapid respiration, and upon placing my ear to the chest, I could distinctly hear a harsh blowing sound in the region of the lung at or near the bifurcation of the trachea. I then prescribed an emetic of cupri. sulph. gr. ss. pulv. ipecac. gr. ij, holding the child in a downward position. This acted promptly four or five times without the succussion causing any expulsion through the laryngeal opening, simply evacuating the stomach of large quantities of unmaasticated aliment. Then calling to mind the case of Brunel, I made his instrument, consisting of a board with a pivot in the centre resting upon two uprights nailed to the floor. I now had the assistance of a neighbouring physician, who, coinciding with me as to the treatment proposed, we strapped the child to the plank, and suddenly raising the heels and lowering the head for a number of times, the bean passed to the larynx, and the patient was nearly suffocated several times during the manœuvre. I now proposed tracheotomy as a last resort, with the assent and promised assistance of my medical friend; but the parents would not consent, and sent for another physician, who agreed with us as to the necessity of its performance. My professional friends, believing the case to be now hopeless, left in the afternoon, and I remained with the patient till dusk. He continued to fail rapidly, and in a severe fit of strangulation the parents at last urged the performance of the operation, promising to cast no reflections on me if unsuccessful. I declined operating by candle-light, and without a skilful assistant; but ordered the child to be held in the lap all night in the easiest position. Dr. Charles Cochran, of Sandusky, arrived at 10 o'clock the next morning, and kindly assisted me through the operation. The patient had passed an uncomfortable night, with great pain and dyspnoea, and at the time of the operation, the features were collapsed with a peculiar agonized expression, and the extremities were cold, with a cold perspiration upon the forehead. The respiration was very rapid and stertorous. A gurgling noise was heard in the larynx similar to that of croup, or like air forcing its way through mucus; the eyes were dull; the pulse could hardly be perceived; and the face was of a purple colour, the patient at intervals gasping for breath. We immediately placed him upon a table in the usual position, with the parts freely exposed, and I made an incision from the cricoid cartilage to the sternum, nearly four inches in length, through the skin and superficial fascia, freely exposing the trachea severing only one vessel of importance. This was immediately tied, and the hemorrhage checked before the tracheal incision was made. The opening was made about an inch below the larynx, and the attempt to pass a pair of curved forceps through the dilated orifice excited a cough, which caused the bean to be forcibly expelled through the orifice for more than three feet. This was immediately followed by at least a tablespoonful of mucus. The lungs immediately expanded, the face resumed its natural colour, the eyes their brilliancy, and the patient appeared to respire without any exertion whatever. This bean had remained in the larynx and trachea for twenty-seven hours, had become very much swollen, was at least half an inch long, and large in proportion; the cortex was soft and unbroken, but was easily ruptured by a slight pressure of the fingers. The wound was immediately closed and a cathartic prescribed which

was continued every other night for a week, and the patient was placed upon a rice and milk diet. He recovered without a single unfavourable symptom; the wound was entirely closed in three weeks from the time of the accident, though it freely discharged mucus from the orifice during the first week; and the lad was almost in *articulo mortis* at the time of its performance.

Anatomical Lesions in Stomatitis Materna, and their Treatment. By J. C. HUBBARD, M. D., of Ashtabula, Ohio.

The want of success in the treatment of stomatitis materna results, I conceive, from overlooking certain anatomical lesions which exist in all marked cases. These lesions are ulcerations of the mucous follicles of the intestines. We have seen five ulcers at a *post mortem* of a well-marked case of the disease, without any other morbid appearances to account for the fatal result. The buccal aphthæ preceded, several months, the diarrhœa of which the patient died. The ulcers were circular, about three lines in diameter, indurated, and very deep. Three of them were situated in the colon and two in the ileum. The surrounding surfaces were healthy, or nearly so. A lady, æt. 35, had borne three children before coming under our observation, and had severe buccal ulceration during the latter part of each pregnancy and during lactation, and could get no relief, though she obtained able advice, except by premature weaning, and suffered intolerably with intestinal symptoms, presently to be described. She was seen first by us ten days prior to her fourth lying-in. She had several large aphthæ on the sides of the tongue and cheeks, which were exquisitely painful. She complained of heat in the stomach, and colicky pains. The fecal discharges were solid, but more or less coated by a "jelly-like substance, and that often spotted with dots of blood;" we use the patient's language. After delivery, she flowed too much. Had irritative fever, darting pain through the colon, and pain with an urgent sensation of heat with tenderness about the sigmoid flexure, with fecal discharges the same as before delivery. The aphthous ulcerations increased in severity and number. She got up slowly. Exchanged her bed for the rocking-chair. An appropriate diet and the common medical means proved of no avail, and the patient anxiously awaited our consent to wean her child. It occurred to us that we should treat her for ulceration of the colon, and it was done as follows: She was ordered one of the following pills two hours after each regular meal:—

R. Zinci sulph., Pulv. ipecac. āā ʒj; Resinæ flav. ʒss; Pulv. mastiches ʒij; Terebinth. canadens. q. s. M. ft. mass. pilul. in No. lx. dividend.

To empty the lower intestines just before retiring for the night with injections of cold water; to be administered slowly, and retained until the water is partially charged with heat.

At first view, the reader may be tempted to pronounce the recipe a farrago; but when he reflects that, in order to change the character of the unhealthy ulcerations in the colon by medicinal substances, they must be applied directly to the diseased surface, and in sufficient quantities, he will see the propriety of the partially or slowly soluble bases of the pill. The zinc is doubtless the most efficacious drug in the compound. Still the ipecac., mastich, and turpentine are not without value. Three weeks after recourse to the above means, the case was decidedly improved, and satisfactory convalescence was soon after established. Six months after, exposure to inclement weather and fatigue brought on relapse; but a very prompt cure was effected by a resort to the original treatment, and she went through the usual period of lactation without difficulty for the first time. We could give an account of seven similar and successive cases all recovering promptly under like treatment. They

all suffered with colicky pains, had mucous discharges, and in several of them a little blood was occasionally present in the stools. Nearly all complained of a sense of heat in the regions of the colon.

We have often noticed that, when the bowels are more painful, and when there is diarrhoea, the ulceration of the mouth is less troublesome, and sometimes suspended for a short time. We would not venture a speculation as to the remote causes of the aphthous diathesis, but the first appreciable warning of its approach is often announced during pregnancy by dyspeptic symptoms, acidity, heat, &c., at first, and finally colicky pains and shreddy mucous discharges from the bowels. Irritated by the acrid excretions, we believe that the intestinal follicles first fall into the aphthous condition; and, by impairing the digestive function, prolong the period of buccal ulceration, if it is not directly productive of it. It is needless to add that many cases will prove fatal under the best directed medication; but when speaking of our own limited experience, we can say that, when our treatment has been directed to the intestinal lesions, the cures have been surprisingly prompt.

A Case of Scrofulous Inflammation of the Lower Lobes of the Right Lung. By J. HALLOWELL, M. D., Pulaski, Tenn.—The subject of the following remarks is a young man about fifteen years of age, of a delicate frame, with a right lateral curvature of his spine, and of a diathesis decidedly scrofulous. I saw him, for the first time, on the 6th of July, 1852, in consultation with Dr. R. G. P. White. He was then very much reduced in flesh, labouring under great dyspnoea, cough, palpitation, and daily exacerbations of fever. His circulation was rapid and easily excited, numbering about 100 in the recumbent, and 120 in the upright position. The cervical glands of both sides were more or less enlarged. He complained of pain and a sense of oppression in his right side. His bowels were constipated and difficult to move.

On percussion, the lung of the right side returned a dull, flat sound, over the mammary, axillary, infra-axillary, and infra-scapular regions. Auscultation over the same regions revealed an entire absence of the respiratory murmur; an occasional whiff, or bronchial puff, being the only sound heard. The breathing in the upper portions of the same lung was loud and puerile, percussion clear and resonant.

The left lung was healthy; increased functional activity gave rise to a harsh respiratory murmur in this side, which was the only discoverable deviation from health.

Upon inquiry into the previous history of this case, I learned that he had had an acute bronchial attack during the last winter, from which he had never entirely recovered; that he had suffered more or less with pain in his side, and cough, until, finally, the symptoms reached their present severity.

Taking the previous history in connection with the symptoms presented at the time of my examination, my first impression was that I had a case of chronic pleurisy to contend with. To test this opinion, I placed my patient in the recumbent position, and renewed the operation of percussion. I turned him about and varied his position, without discovering any variation in the line of demarcation between the dull and resonant lung from what I had discovered in the upright position. I was then satisfied that the lung was indurated.

Dr. White was of the opinion that an extensive deposit of tuberculous matter had taken place.

Having just read Dr. Pepper's paper on "Scrofulous Inflammation of the Lungs," (see this *Journal* for April, 1852, p. 299,) and having no data upon

which to determine the length of time the lung of our patient had been arriving at its present condition, I thought it might be a case of that character of disease, and expressed myself accordingly to Dr. White.

We determined to put him on cod-liver oil and iodide of potassium, and watch the result. In one week's time there was a marked improvement in all the general symptoms; fever and night-sweats had in a great measure disappeared, and his circulation was comparatively natural. His general health gradually improved. At the expiration of three weeks from the period of commencing the oil, bronchial breathing was distinctly audible throughout the affected lung. The physical signs improved now daily. At the present time, August 30, with the exception of slight weakness of the respiratory murmur, the signs are all natural. Our patient has gained some twenty pounds in weight, and can take active exercise without fatigue.

Case of Strangulated Inguinal Hernia successfully treated by the Cold Douche. By EDWARD WARREN, M. D., of Edenton, N. C.

On the 20th of November, I was sent for in haste to visit George, a negro, aged about 40 years, who had been suffering for several hours with strangulated inguinal hernia.

I resorted to all the usual expedients for relaxing the constriction and returning the intestine, but entirely failed to produce any diminution in the size of the tumour.

Before resorting to an operation, a remedy suggested itself to my mind, with which I was fortunately perfectly successful.

Stripping the patient, and putting him in the most convenient position for taxis, I procured from a stream near the house a pail of very cold water, and without giving the least warning, poured a considerable portion from the height of several feet immediately upon the tumour and point of contraction.

The result surpassed my most sanguine expectations. The patient was violently convulsed for a moment, the constriction then relaxed at once, the intestine was returned, and an operation avoided.

Chalybeate Spring on Petty's Island. By JAMES C. BOOTH.—The proprietors of the island, Messrs. Manderson & Co. of Kensington, bored for cool drinking water during the last summer to supply the hands at the ship-yards recently opened upon the island. The island is situated in the Delaware River opposite Richmond, and its general surface is about on a level with very high tides, the soil being evidently the solidified blue-mud deposit of the river. In descending, the following strata were passed through:—

	Feet.
River mud solidified	5
Bar sand and mud, alternating and mixed	30
White clay	$\frac{1}{2}$
Sand, cemented into gravel by oxide of iron	$7\frac{1}{2}$
Rock, probably gneiss	$\frac{1}{2}$
	43 $\frac{1}{2}$

After having bored to this depth, the water rose to about the surface of the island, and was strongly chalybeate; but as they did not test it while boring, they did not know at what part the chalybeate made its appearance. Unfortunately, the fragments of rock were lost, but from the description I suppose it to be gneiss, although it may only be a hardened ferruginous rock. The following is the analysis of one gallon of the water executed by my assistant, John Hewston, Jr.:—

	Grains.
Bicarbonate of iron	16.305
“ lime	4.360
“ magnesia	1.839
“ soda	1.611
Silica	3.720
Organic matter	3.100
Free carbonic acid	8.224
Total	39.159

We usually employ a gallon, as in this case, containing the even 60,000 grains of pure water at 60°. As a large portion of carbonic acid passes off by exposure and evaporation, the latter yielded 19.14 grains of solid residue to the gallon, while the same determined by calculation is 19.694.

Computed in cubic inches, at 60° Fahr. and 29.92" Bar., the total amount of carbonic acid in the gallon is 46.63 cubic inches, of which 41.46 pass off, leaving the neutral alkaline carbonates. The excess of gas above all the bases, computed as bicarbonates, is 17.37 cubic inches.

These results, compared with those of some fifty chalybeates of Europe, exhibit a different constitution from them all. Petty's Island water is a true earthy chalybeate, and most nearly resembles the springs of Klininger in Carinthia, Lamscheid near Coblenz, and Schmerikon in Switzerland, but contains smaller quantities of the carbonates of lime, magnesia, and soda. It is chiefly characterized by its unusually large content of iron, in which it is surpassed by only two or three in Europe, since it contains one and a half grains of carbonate of iron in the pint, and the usual quantity contained in the earthy alkaline chalybeates is about one-third of this amount. There is one remarkable spring, the Chapelle Godefroy, Dept. de l'Aube, in France, which contains twice as much as that on Petty's Island.

This water is further characterized by the large amount of silica it contains, being nearly half a grain to the pint; and, by the absence of sulphates and chlorides, being in this last respect different from all other chalybeates, the analysis of which I have found.

It is doubtless a tonic, like chalybeates generally, and its freedom from sulphates or chlorides may prevent an astringent effect. From its effects upon some five or six persons, it appears to be diuretic. The large amount of organic matter in it, and our ignorance of its nature and medicinal effects, prevent speculation on the special therapeutic properties of the water.

From the peculiar position of the spring and our ignorance of its source, theoretic considerations on its geological bearings would be idle conjecture.

DOMESTIC SUMMARY.

Fracture of the Cranium, with Depression, followed by Tetanus.—[Prof. E. GEDDINGS records in the *Charleston Medical Journal* (July, 1852), a very interesting case of fracture of the cranium, with depression, followed by tetanus, in which he successfully practised trephining. Dr. G. acknowledges his indebtedness to Dr. H. R. FROST for the following notes of the case]:—

On the 17th of August, 1851, Mr. M— received a severe blow on the upper part of the right side of the forehead, with the end of an iron belaying-pin, which was thrown at him, end foremost. The scalp was divided to a limited extent, and, as was subsequently discovered, the cranium fractured, and driven down upon the dura mater.

As no unpleasant symptoms, except those of an evanescent character, were

manifested, the case was submitted to simple treatment, and the wound continued to heal kindly for several days, although it was found, on introducing a probe, that the bone beneath was denuded.

On the 13th day after the injury, a feeling of uneasiness was experienced about the jaws, with a stiffness and inability to open the mouth. The symptoms of traumatic tetanus thus declared, extended by slow steps to the muscles, tongue, neck, shoulders, and back; to the diaphragm and abdominal muscles; and to those of the hips and thighs. On the 17th day, the jaws were so firmly closed that he could not masticate, and the tongue felt so large and stiff that he could scarcely protrude it from the mouth. Sitting at the table, he was seized with pain in the shoulder of one side, which seemed to stretch across to the other; pain at the scrobiculus cordis next succeeded, which extended to the muscles of the small of the back and legs. The muscles of the face, particularly about the eyebrows, were also much affected.

All the above symptoms gradually increased in intensity until the 12th of September, thirteen days from the period of their inception. The mental faculties, even at this late period, were not in the slightest degree disturbed, but the unfortunate patient was now under the full influence of general opisthotonos. He complained of extreme weakness of the knees. The mouth was half contracted; the jaws rigid; a sense of spasmodic constriction extended to the throat, attended with a feeling of choking. There was also pain in the back, increased by the frequent tonic spasms; rigidity of the abdominal muscles; frequent spasmodic contractions of the muscles of the face, impressing upon the countenance that peculiar expression of distress, so common in tetanus. The skin was covered with a profuse perspiration; but there was neither pain in the wound, nor head.

The opiate treatment, which had been previously instituted, with light diet, was still continued, but without manifesting the slightest control over the symptoms. The diet consisted of arrowroot, thin broth, &c.

During the afternoon, the spasmodic contractions grew more violent and alarming. While reclining on a bench, he was seized with such violence as to be thrown upon the floor, from which he was unable to rise. The family, greatly alarmed at this, sent for me; and, on entering the room, I found him affected with violent spasmodic action of the whole body, manifested particularly by twitches of the face; rigidity of the muscles of the back, abdomen, and the system generally; with tonic contraction of the muscles of the lower jaw; pain at the scrobiculus cordis; a profuse and general perspiration—the pulse being about a hundred, and irregular.

At this juncture, Prof. Frost, feeling that merely medical treatment could be no longer relied upon, requested my aid in consultation. I found the patient very much in the condition described above. The tetanic spasms, which were general, and somewhat violent, were of frequent occurrence, being called into action by the slightest effort to move or speak. The mind was clear, however, and unusually calm; the pulse was hurried, feeble, and irregular; the respiration embarrassed by the frequent recurrence of the spasms; and the whole surface cold, and covered with a profuse, clammy sweat. A wound of limited extent occupied the scalp, upon the upper part of the right side of the forehead; on probing which, I found the bone beneath denuded, and implicated in a moderately extensive stellated fracture, and depressed considerably below the natural level at the centre of the fracture, so that the sharp spicula encroached upon the dura mater, and compressed the corresponding portion of the brain.

After conferring upon the nature of the case, it was determined to perforate the cranium, and elevate the depressed bone. This I proceeded to do immediately, in the following manner. An incision, with two branches, so as to form a small obtuse-angled flap, was made through the scalp down to the bone; the flap was turned up; the pericranium detached to the requisite extent, and the edge of the undepressed portion of the bone cautiously perforated with a small trephine. This done, an elevator was passed through the aperture, and all the depressed portions of bone were in succession elevated to their proper level, while the smaller detached fragments and spicula were removed. The

flap was then adjusted, and secured by adhesive strips, and cold water dressings directed to be applied continuously.

Before the dressing was completed, the patient expressed himself greatly relieved. His countenance became more composed; the spasms were relaxed; the twitchings were very much mitigated; the respiration became freer; the pulse, which was before frequent, small, and irregular, now became more expanded; and instead of the cold and clammy surface, a general warmth diffused itself over the whole body. He was put to bed; an anodyne prescribed; and all visitors were excluded. Directed to be confined to water, tea, arrow-root, &c.

I here resume Prof. Frost's narrative.

September 13, in the morning, visited patient. I found his aspect much improved. There was no longer any excitement, or general spasms; had rested quietly during the first part of the night, and slept towards morning; pulse 88; breathing easy; jaws still contracted; but the spasms of the other portions of the body much abated in violence; no pain of the head, or in the wound; had taken nourishment, and expressed himself greatly better.

Afternoon. No increase of spasmodic symptoms; general feelings improved; slight fever; pulse 100.

14th. The tetanic spasms still gradually subsiding. The night was spent, for the most part, in a state of sleepless disquietude, but some sleep was obtained towards morning. The pulse 80; slight heat of skin; with trifling soreness and pain in the wound. The spasms occasionally recur in the muscles of the back, in those about the eyes and face, and his jaws can be only partially separated. He moves himself freely in bed; assists the nurse in adjusting his position; and feels so much better, that he craves animal food; but his diet is still restricted.

Afternoon. Condition of the patient nearly the same; pulse 80; spasmodic twitchings still take place down the back, with rigidity of the jaw; wound partially united, and healthy.

15th. Improvement progressive; spent a comfortable night; pulse 80, and regular; slight twitches still experienced in the back. Afternoon. No unfavourable change; wound healing.

From this time, the patient continued to improve without interruption, and by the 19th day after the operation, the tetanic symptoms had entirely subsided.

Operation of Tracheotomy in an Epileptic. By Dr. JOHN NEILL.—The views of Marshall Hall, which have lately appeared in the English journals upon the subject of epilepsy, have probably fallen under the notice of most of the Fellows of the College.

Every investigation of a malady so distressing, and of which so little has been known of its pathology, must be hailed with pleasure by every practitioner of medicine. Especially will this be so, when so high an authority upon affections of the nervous system advances views not only as to the nature of the disease, but also practical deductions of the highest importance.

Dr. Marshall Hall says: "This question of the application of tracheotomy in the preventive treatment of epileptic convulsion, is one involving high principles in physiology.

"As I have stated, I believe few will hesitate to perform the operation of tracheotomy, as the present remedy, when there is, from apoplectic laryngismus, imminent danger to life. But the question remains—are we justified in performing this operation in cases of epileptic and other convulsions, as a preventive of future evil? Are the somewhat remoter danger to mind, and limb, and life, and the hope that whilst the faculties are spared the patient may be rescued from the susceptibility to the attacks, the *dignus vindice nodus*, a sufficient motive for adopting this measure in its more continuous mode of a tube worn in the trachea. After having witnessed the dire circumstances and effects of the frightful maladies more than any man, of epilepsy especially, I unhesitatingly say, yes! I regard the melancholy condition of the patient as justifying the heroic remedy. The case may be violent and frightful in any degree. In what precise case tracheotomy is justifiable I do not pretend to determine.

It is a matter of pure *moral* calculation and choice in regard to the terrors of the malady on the one hand, and of the remedy on the other. Epilepsy may occur in the slightest form of mere transient oblivion, and it may occur in the gravest form of sudden and violent convulsion, dashing the patient to the ground, into the fire, or into the water, and followed by coma or apoplexy, delirium or mania, paralysis, amentia.

"The former of these attacks may be designated the *epilepsia mitior*. It comprises all that is short of laryngismus, affections of the senses, as muscæ, tinnitus, the odour of musk, aura, vertigo, oblivion, confusion, loss of consciousness, nutatio, falling, various spasmodic affections of the face, the eyes, the extremities.

"Then comes laryngismus, laryngeal dyspnœa, perhaps perfect closure of the larynx, with violent efforts of expiration. This with all the other links of the dreadful chain constitute the *epilepsia gravior*; all that is on *this* side of the laryngismus must be unaffected by the operation of tracheotomy; all that is on *that* side of this laryngismus will, I trust and believe, be prevented by its efficient institution. By tracheotomy, the *epilepsia gravior*, or the 'grand mal,' is converted into the *epilepsia mitior*, or the 'petit mal.' If this, my hope, be realized, I shall deem the event a great victory achieved by physiology or theory over mere observation, and especially by that of the diastaltic nervous system, of which it is an application.

"I may now observe, in conclusion, that I have on several occasions stated that, if tracheotomy were performed, and a tube worn in the trachea, the epileptic, the puerperal, or the infantile convulsion, would be prevented, with its dire effects."

In accordance with these views, I operated upon a patient of Dr. Shelmerdine, in Spring Garden, under whose care he had been for about one year, and who had tried all the ordinary modes of treatment. The following are the particulars of his case:—

John Blume, aged twenty-nine, of five feet eleven inches in height, and weight about one hundred and sixty pounds. His appearance was healthy, and he had no deformity of the throat.

His first fit occurred nine years ago, and was not referable to any particular cause by his family. He was not subject to them in childhood, although his brother had died of epilepsy.

The frequency of the paroxysms gradually increased, and for the last year he has been unable to attend to any business.

His mind has been so affected by the disease that he has frequently mistaken his way home, and often gone into the neighbours' houses for his own.

His mother and wife informed me that, during the last six months, he would have an attack at least every other day, but occasionally would have as many as fifteen or twenty during the day.

Life had become a burden to him, and he feared to leave his home.

His physician tells me that, on the first occasion of his being called to him, he was labouring under most severe congestion of the face and neck, producing great lividity and complete insensibility; and that, in all of the subsequent attacks, difficulty of breathing seemed to be prominent.

The patient himself remarked to me that, immediately preceding his attacks, he frequently experienced a sense of constriction about his windpipe; and his friends and family confirmed the idea, that the severity of the attack was proportionate to the difficulty of breathing.

When the operation was proposed, and its nature explained to him, he was anxious for its performance, and had great expectations of its relieving him.

The operation was performed on the 11th of March last, in the presence of Drs. Shelmerdine, Marshall Paul, and Hollingsworth.

His neck was long, and well adapted for the operation. The incisions were made in the usual way, and the only points worthy of remark were, that the sterno-hyoid muscles, from frequent spasmodic contractions, were thicker than usual; and that the isthmus of the thyroid gland was so large and broad as to cover the first three rings of the trachea.

The hemorrhage was not so troublesome as might have been expected; care

was taken to tie the inferior thyroid vein, and no irregular artery was met with after the trachea was exposed. A piece of about three lines in breadth was removed from the middle of the fourth ring of the trachea, and the fifth ring also was divided, in order to accommodate more accurately the tube which had been provided, which was of the ordinary form of the instrument of the shops.

The introduction of the tube produced but little irritation and coughing, his voice was not in the least affected; but the trachea was smaller than usual, and the wound becoming so very deep after the division that I had constructed tubes of various angles and length corresponding with the depth of the wound. (Specimens of the tubes were exhibited to the College.)

He slept but little the first few nights after the operation, and seemed unwilling, at first, to trust himself in a recumbent position; but as the wound healed around the tube he became comfortable, and had nothing like a return of his complaint until the *thirteenth* day after the operation, which tendency to an attack he attributed to his removal of the tube: he had taken a slight cold, which made the tube disagreeable on that day, and he thought he would risk the night without it. The spasm was slight, and he did not lose his consciousness. About *two weeks* after this, he was threatened with an attack of which he was conscious, and mentioned the fact to his mother, who immediately removed a temporary plug which he introduced in the orifice of his tube to prevent a whistling noise accompanying respiratory movements. Upon the removal of the plug the symptoms disappeared, his breathing was comfortable, and he felt much encouraged. He began to appreciate the object of the operation, and fully believed that the means to mitigate the severity of his attacks was the removal of the plug, and that the disease was under his own control.

He made arrangements to renew his business, walked about the streets in the confidence and consciousness of a strength of mind and purpose which he had not experienced for a long period.

Unfortunately for him, however, he was again seized, on the evening of the 2d of May, with symptoms of another attack. His physician was sent for, who removed the tube and cleansed it; after it was replaced the patient felt easier, but was not completely relieved. In the middle of the night he had a most violent attack, and died almost instantaneously. His physician was not with him when he died, and the family would not permit a *post-mortem* examination of any part of his body but his throat. Dr. Shelmerdine merely examined the cicatrix around the wound and the trachea. The parts had consolidated around the tube, and the trachea was perfectly healthy.

I report this case to the College in order that they may form their own judgment upon the theory and the treatment of Marshall Hall. Few cases have as yet been reported where this operation has been performed, and I believe that this is the first case in this country in which the trachea has been opened, and a tube worn, in order to mitigate, if not prevent, attacks of epilepsy.

And, although this patient died, I still think favourably of the operation, and, under the same circumstances, would perform it again. His death was in no way attributable to the operation, and had not the operation been performed, it might have occurred at a still earlier period. I regard the mitigation of the attacks with which he was once threatened, and moderation of the symptoms, as more satisfactory than if there had been no approach of an attack, for then the entire absence of the complaint might have been attributed to the shock made upon the system by the operation; and this operation would have demonstrated nothing more than tying the carotid artery, after which, and other violent shocks, patients have been free from attacks for a long period.—*Trans. of the College of Phys. of Philadelphia*, from May 4 to July 6, 1852.

Excision of the Superior and Inferior Maxillary Bones. Prof. S. D. Gross, of Louisville, has published (*Western Journ. Med. & Surg.*, Oct. 1, 1852), a very interesting paper, on excision of the upper jaw, in which he gives a brief account of the more frequent and important diseases requiring this operation, and relates the history of seven cases, in which he removed the upper jaw, either wholly or in part. Of these seven cases four have died; three from a recurrence of the

disease, and one from the effects of pneumonia nearly three weeks after the operation. Two entirely recovered, and one had a relapse, but is still living.

Dr. G. says, he has never found it necessary in any of his operations upon the upper or lower jaw, to secure the carotid artery, as a means of preventing hemorrhage. "Indeed, one cannot but be surprised," he says, "that such a procedure should ever have been recommended, much less employed, by any sensible surgeon. My experience is, that there are no organs in the body, of the same extent in their natural and diseased condition, the removal of which is attended with so little hemorrhage. I am not in the habit even of employing compression of the carotid artery in these operations: and, as to tying that vessel as a means of security against the loss of blood, I should as soon think of ligating the femoral artery for the same purpose. Nothing could be more absurd and unnecessary. The chief danger from bleeding is in the subcutaneous arteries, especially the facial and its branches, and expert assistants should always be at hand to seize and compress them, as soon as they are divided. I rarely, if ever, stop to tie a vessel during any operation, however extensive or complicated. My experience has taught me that there is, in general, no necessity for such a course, which is always attended with vexatious delay and annoyance. The deep-seated arteries involved in tumours of the upper jaw seldom bleed much, if care be taken to keep beyond the limits of the diseased structures. If this precaution be neglected, the hemorrhage may be copious, and even exhausting. The oozing which takes place from the osseous surface, after exsection has been effected, generally speedily ceases of its own accord from the contact of the atmosphere; where this is not the case, a stop may usually be easily put to it by the application of compresses, wet with a saturated solution of alum. The actual cautery could be necessary in such a case only when a portion of the tumour has been left behind; a circumstance which ought never to happen in the hands of any one, as it must necessarily lead to a speedy reproduction of the mischief."

In the same journal for Oct. 1852, there is another interesting paper by Prof. Gross on excision of the inferior maxillary bone, with the details of five cases, in which he performed that operation, in all with a successful result. In one case, in which a portion of jaw was first removed, the disease returned twice and required further portions to be removed; but at the date of the report, two weeks after the third operation, the patient is said to be well.

Total Removal of the Clavicle. By A. J. WEDDERBURN.—Michael Foggerty, aged twenty-one years, a labourer, was admitted into the wards of the Charity Hospital on the 21st of January, 1852, with caries of the clavicle, so extensive as to require its entire removal by disarticulation at both extremities. The operation was made whilst the subject was under the influence of chloroform.

Operation.—An incision was made down to the bone over its entire length, and sufficiently far beyond its articulating points to enable the disarticulation to be effected. The soft parts attached to the upper surface and the anterior border of the bone were separated; next, the separation from the acromion effected. The dissection was then continued close to the bone beneath, whilst the parts were kept on the stretch by elevating the bone from the point just indicated. During the dissection the bone broke, from its diseased condition, about one and a half inches from its sternal articulation, which rendered the dissection connected with this portion of the bone more tedious than it would have been, had there been a sufficient length of bone left to have given a purchase. For the removal of such a diseased part as this, there can be no established mode of operation. Circumstances must always govern. Caution, and a thorough knowledge of the region, is all that is necessary to make such operations simple and easy. The result of this operation was perfectly successful. Recovery was rapid, and the case was discharged cured, towards the last of April, in something less than three months after the operation. When the case left the hospital the use of the arm was perfect; the shoulder occupied its natural position; it was neither depressed, projected forward, nor drawn nearer the sternum, and no other evidence presented that an operation had been made than the cicatrix. He was discharged on the 8th of April.

Treatment.—The cavity from which the bone was removed was filled with lint

saturated with a solution of quinine, and kept in this condition for twenty-four hours. The next day, the cut surface was brought together with adhesive plaster, over which was placed a compress of lint, wet with a solution of quinine, about five grains to the ounce of water. No other treatment was resorted to during the cure. The shock from the operation was so slight that he was sitting up in twenty-four hours after the removal of the bone. The solution of quinine was chiefly used in this case for its prophylactic effects against erysipelas, which was prevailing in the hospital at the time.

The total removal of the collar-bone has been done but twice before in this country. By Dr. Valentine Mott, in its successful removal for osteosarcoma of the left clavicle, in 1828; and also by Dr. Warren, in 1833. In Europe, it has been made by Meyer and Roux, on account of caries; by Travers, "on a boy of ten years of age, who, in consequence of a fall, probably broke the collar-bone without rupturing the periosteum, had large effusions of blood within it, which formed a tumour that by degrees involved and destroyed nearly the whole bone, except at its sternal end."—*New Orleans Monthly Med. Register*, Oct. 1, 1852.

Bite of the Rattlesnake.—The following interesting account of the effects of a bite by a rattlesnake, is given in an extract from the journal of the sufferer, Lieut. J. C. Woodruff, U. S. A., in the *Buffalo Medical Journal*, July, 1852:—

"Wednesday, Sept. 17, 1851. This morning, Lieut. J. F. Parke, Topographical Engineers, U. S. Army, and I, were walking out to procure some specimens of birds, and when about two miles from the Pueblo, I came within a few inches of treading upon a rattlesnake, who immediately coiled himself up and got ready to strike; jumping back, I drew out my ramrod and struck him over the back with sufficient force to break it. Being a fine specimen, I wished to preserve it without further injury, when, placing my gun upon its head, seizing it, as I thought, immediately back of the head, I picked him up, but, unfortunately, I had too long a hold, when he threw round his head and buried his fang in the side of the index finger of my left hand, about the middle of the first phalanx. The pain was intense, momentarily producing, as it were, a severe shock, and accompanied with much nausea. I immediately commenced sucking the wound, at the same time got Lieut. Parke to apply a ligature round the finger to prevent the too rapid absorption of the poison. I then scarified it freely, and continued sucking until I returned to camp.

"A man that was with us at the time, I sent immediately back to get some aqua ammonia fort. and meet us on the road, which he did when we were about three-fourths of a mile from the town. I applied it immediately to the wound. Mr. Kern hearing what had happened, returned with him, and he wished me to try, as he said, the *Western Remedy*, that is to say, get drunk. This I had often heard of, and I was determined to try its efficacy. He was supplied with a bottle of whiskey, which I immediately commenced drinking; by the time I arrived at the Pueblo, I had drank half a pint. Already the glands in my axilla were getting sore and painful. Took some ammonia internally, scarified my finger freely, and held it in a basin of warm water, which caused it to bleed freely. Then commenced drinking brandy, at the same time held my finger in a cup of ammonia. It took one quart of fourth-proof brandy and half a pint of whiskey (enough to have killed a man under ordinary circumstances) to produce intoxication, which only lasted about four hours. During my intoxication I vomited freely; soon after my recovery from this state I removed the ligature and applied a large poultice of pulv. sem. lini. That afternoon I took ammonia internally, and some pills composed of mass hydrarg. et colocynth comp., to act as a cathartic. In the evening the pain in the axilla and finger was very severe; took pulv. Doveri, grs. x.

"Thursday, 18th. I passed a restless night without sleep, although during the night I took at least pulv. opii, grs. iv. This morning the pain in my finger is intense, and a well-marked line of inflammation extends along the arm to the axilla. I had the entire arm and hand painted with tinct. iodine, and the flaxseed poultice renewed, commenced taking a solution of potassii iodidi as an alterative. The pills not having operated, I took pulv. Seidlitz, which had the

desired effect. Diet, boiled rice. Several times to-day I tried to walk across the room, but each time would be seized with nausea and commenced vomiting. Took at bedtime pulv. Doveri, grs. x.

"Friday, 19th. I rested pretty well last night, but this morning my hand, arm, and the glands in the axilla, are much swollen and very painful.

Repeated tinct. iodine. Diet, boiled farina. Took on retiring, pulv. Doveri, grs. x.

"Saturday, 20th. Passed a tolerable night, but my back is getting very sore, as the blankets on the stone floor make rather a hard bed. This morning the pain is very great, and the swelling down my left side as far as my hip. Renewed tinct. iodine. I am still attacked with nausea and vomiting on my attempting to walk.

"I removed the skin from off my finger, and it discharged freely a watery sanguineous fluid without smell. The nail is becoming loose. The broad red line following the course of the lymphatic, is now filled with a yellowish serum. The point where the fang entered, for three-eighths of an inch in diameter, is of a dark brown color. Renewed the poultice. At bedtime took mass hydrarg. grs. v, pulv. Doveri, grs. x. Continued potassii iodidi. Diet the same.

"Sunday, 21st. Passed a restless night, being much troubled with colic; took magnesia calc. et spts. menth. pip., which relieved me, and not having my bowels open took pulv. Seidlitz, which had the desired effect. Hand much swollen and filled with serum. Diet as usual.

"Monday, 22d. Passed a comfortable night. The swelling has left my side and arm, but little remains in the hand. I can now walk a few yards without being seized with nausea; have been sitting up the most of the day. Continued potassii iodidi. Diet, mutton broth and farina.

"Tuesday, 23d. I awoke this morning much improved, the swelling and pain having left, with the exception of the finger, the first and second joint of which does not present a healthy appearance, the palmar surface having the appearance of gangrene, but the discharge is thin and watery, without smell. The granulations do not present a healthy appearance, they are rough, and many of them look as if they were sprinkled with yellow ochre. The nail is quite loose. Continued potassii iodidi. Diet, mutton broth, with a little of the meat.

"Wednesday, 24th. This day we commenced our march. I placed my hand in a sling and mounted my mule; found myself rather weak, and the mule hard to manage with but one hand; the sun was rather hot; this, with the jolting of the animal, caused me to suffer considerable pain; fortunately for me, after going six miles, we encamped. I removed the nail. From this time on the finger gradually improved. I continued renewing the poultice daily until the last of October. In the mean time there was a large slough, which gradually came away, and left the last phalanx exposed in two places. The granulations required occasionally the application of nitrate of silver. After this I made use of dressings of cer. simplex. Continued carrying my hand in a sling until the middle of November. A new nail commenced growing, and a sinus remained open in the end of the finger; upon the introduction of the probe into the latter, the bone could be felt quite rough. A discharge from this kept up until about the 7th of February, when I removed the exfoliation of the end of the phalanx, showing evidently that the fang had entered the periosteum. Soon after this the sinus closed, leaving the finger in a deformed state, ankylosis having taken place in the first joint. The circulation is very imperfect, one of the arteries being destroyed, which renders it very susceptible of cold. The insertion of the flexor muscle has also been destroyed.

"I have heard of a number of instances of rattlesnake bites, in all of which the patient recovered if they succeeded in producing intoxication.

"Dr. Fischer C. Smith, of this city, accompanied Capt. French, A. Q. M. U. S. Army, to El Paso last year, and on their return one of the teamsters was bitten by a rattlesnake; he gave him nothing but whiskey, and in three days after he was driving his team. In this case it took three pints of whiskey to produce intoxication."

[Dr. HARVEY LINDSLY, of Washington, also relates (*Stethoscope*, Oct., 1852) the case of a soldier who was bitten by a rattlesnake, and was made dead

drunk afterwards by his comrades, as an experiment in the way of cure. He recovered.

It should be remembered, however, that all cases of bite are not fatal, and it therefore requires a more extensive trial of the remedy to justify confidence in it.]

Veratrum Viride, American Hellebore.—Dr. W. C. NORWOOD, of Cokesbury, S. C., asserts (*Charleston Medical Journal*, Nov. 1852) that the remedial powers of this article are: “1, acrid; 2, expectorant; 3, diaphoretic; 4, adanagic; 5, nervine; 6, emetic; 7, sedative—arterial sedative. I might add an 8th property or power, viz., it creates and promotes appetite, in small doses, beyond any agent we are acquainted with.

“Its acrid powers are slight, and mostly confined to the mouth and fauces, and do not excite that warmth in the stomach, and general glow, peculiar to those of calomel or the iodide of potassium, and, in connection with other properties, are anticipated great and permanent relief from it, in the treatment of cancer and consumption.

“The expectorant powers are not surpassed by any article for which this property is claimed.

“Its diaphoretic powers are manifested with as much certainty and extent as by any belonging to the same class.

“Its adanagic, alterative, or deobstruent powers, are, we believe, superior to those of calomel or the iodide of potassium, and, in connection with other properties, are anticipated great and permanent relief from it, in the treatment of cancer and consumption.

“We are unable to select any term fully expressive of our meaning, or more capable of conveying a knowledge of the power of the article, in this particular, than nervine. Its nervine powers are great, allaying morbid irritability and irritation, but more especially morbid irritative mobility, and relieving pain in febrile and inflammatory diseases, without stupefying and torpifying the system, as opium and its various preparations are known to do. We might go on to specify many circumstances, where, in a minor and subordinate sense, it relieves, without any of the unpleasant effects peculiar to opium following it, as muttering while dozing, lying with half-closed eye, frightful dreams, torpor of the bladder and bowels, &c. We preferred to call this property or power nervine, from its relieving pain to as great, and perhaps greater extent than opium, in many inflammatory diseases, and more especially where there is irritative mobility.

“We avoided the term sedative, because it is often applied to narcotics, and likewise to articles that reduce entonic action; but more particularly on account of applying it to designate one of the most valuable powers possessed by the *veratrum viride*.

“It is one of the most certain and efficient emetics belonging to the *materia medica*, and one on which we, above all others, would prefer to rely, for the purpose of breaking up and arresting disease. Of course, we are speaking in a general sense, as all know there are immediate and certain specific effects, which can be obtained only by the specific effect of a certain agent. In our first use and experience with the article, we came to the conclusion that its effects were mostly confined to the stomach; but a more extended experience has convinced us of its powerful effects on the liver. It possesses, in an eminent degree, the property of exciting the liver to action. It is not followed by prostration nor exhaustion, after the paroxysm or effort of vomiting has ceased. It possesses a superiority over all other, or a large number of active emetics, in not being cathartic. It is not refrigerant, reducing, or antiphlogistic, in the sense that tartar emetic is, but may be given in any stage of pneumonia or typhoid fever. It is rather slow, perhaps, from the manner of administering it, in producing emesis, but the most certain of any article that acts as an emetic.

“We now come to notice the seventh, and by far the most important of all of its powers. We call it arterial sedative, for the very reason that we have, at present, no other term that so fully expresses the meaning we wish to convey. *Veratrum viride* possesses the power of controlling, we might say at will, the action of the heart and arteries. No man can give it in five successive cases

of well-marked pneumonia without being convinced of this remarkable fact. It fails so seldom in producing this astonishing effect that we feel constrained to call it universal, on the principle that the exception proves the rule. *Exceptio probat regulam.* The certainty and extent of this power rests on such a "cloud of witnesses," that we shall not waste time in the farther proof of it.

"We merely mention the eighth power, and leave the statement to be settled or not, viz., its ability to create and promote appetite.

"It often produces severe nausea, frequent vomiting, intense paleness, coolness, and occasionally coldness of the surface. In some cases, the vomiting is almost continuous. It occasionally excites hiccough; and where the nausea was severe, and vomiting frequent and almost persistent for the time, we have found the pulse small, slow, and almost imperceptible at the wrist.

"Our formula, or recipe, for making it is the following: *R. Rad. veratrum viride*, dried, eight ounces; *Alcohol* of the shops, sixteen ounces. Digest at least for two weeks.

"Of this preparation we give as follows: To an adult or grown man, eight drops to be given every three hours, increasing the dose one or two drops every portion given, till the pulse is reduced to 65 or 70, or nausea or vomiting ensue. Ladies, and boys, or lads, from fourteen to eighteen, begin with six drops, and increase as above. Children, from one to five years old, begin with from one to two drops, and increase one drop only. When the pulse is reduced as low as wished, or nausea or vomiting occurs, reduce the dose one-half, in all cases, and continue the medicine so long as necessary to prevent a return of the symptoms. One or two portions, if necessary, of syrup of morphine and tincture of ginger, or brandy and laudanum, will relieve all the nausea, vomiting, or unpleasant effects that may follow the use of the tincture of *veratrum viride*, if given according to the above directions.

"We mention the reduction of the pulse, or nausea, or vomiting, as governing points for reducing the quantity. We have reduced the pulse as low as thirty-five beats per minute, without exciting the least nausea or vomiting. If the remedy had been continued in the same quantity, without any farther increase, we are at a loss to know what the result would have been. Whether or not it would have suspended the action, so as to produce death, we are not able to say. We have frequently succeeded in reducing the pulse without nausea or vomiting; so that the reduction of the heart and arteries is not dependent on either of the above-mentioned circumstances. * * * *

"We are convinced that quinine and brandy, but more especially quinine, are inadmissible in the treatment of typhoid fever during the use of the *veratrum viride*. We have treated several cases of typhoid fever in council, where all the usual remedies had failed, and where there was an effort making to sustain action and excite and diffuse heat, by brandy and quinine, and rubbing the surface generally with pepper; and notwithstanding all this effort, the pulse was so feeble and peculiarly quick in the beat, that we could number it with difficulty, making it from 130 to 135, and the skin continued cool, with an intense burning and heat extending from the stomach to the fauces. Medicine of every kind whatsoever was withdrawn, and she was put on the use of the tincture of *veratrum viride*, commencing with three drops, to be increased every three hours. The three drops nauseated and vomited before the period for repeating the dose, which brought up a quantity of thick mucous and glairy fluid, resembling the white of an egg; after this, a large quantity of thick and dark bile. At the period, nausea and vomiting having ceased, we gave four drops, from which she vomited freely in half an hour, bringing up a large quantity of thick yellow bile, which afforded relief from the internal burning, and excited a general diffusion of heat over the surface, the pulse becoming more full and distinct; and by continuing the *viride* in three-drop doses every three hours, and six drops every six hours, in a little cold water, by injection, the pulse, in forty hours, was reduced down to ninety, full and distinct, without the addition of a single portion of brandy or quinine. If this were a single or isolated case, we would not have mentioned it; but we have treated a number of cases with a like effect and success.

"We usually administer it in a little sweetened water, and are specially particular not to leave a mixture of it with paregoric or lavender, or anything that

will cover the taste and smell, unless there is a label on it, as a mistake might happen, by any person thinking that the paregoric or lavender were pure and unmixed."

Snoring Prevented. Excision of the Uvula.—Dr. L. A. DUGAS relates (*Southern Med. and Surg. Journ.* October, 1852) the case of a boy, about five years of age, whose respiration during sleep was so bad that his parents feared he might suffocate. He found the uvula to hang flabby and rest on the base of the tongue, though not paralyzed, as it retracted when touched by an instrument, and sometimes spontaneously. Dr. D. clipped off the uvula, and the child has not snored since. He suggests that it might be advisable to resort to this operation for the relief of snoring adults, or rather for the relief of those annoyed by such bed-fellows.

Boletus Laricis, or White Agaric, as a Purgative.—Dr. Wm. M. MCPHEETERS has tried some experiments with the *Boletus Laricis*, which, though not numerous enough to determine its value as a cathartic, are sufficient to justify more extended experiments. The *Boletus Laricis* grows abundantly in the Rocky Mountains. It is a fungus on the white pine of that region, and is commonly employed by the traders and inhabitants of the mountains as a cathartic.—*St. Louis Med. and Surg. Journ.* Sept. and Oct. 1852.

Quinine in Typhus Fever.—In our last No., pp. 501-2, we gave a summary of the experience of a number of British practitioners relative to the remedial powers of quinia in typhoid fever. The results of experience were for the most part unfavourable. Dr. JOHN DOUGLASS, of Chester District, S. C., has been led by his experience to the same result. In a paper in the *Charleston Med. Journ.* Sept. 1852, he states: "In my practice, quinine given in doses large or small and in every form, in no single instance arrested the disease [typhoid fever], but often increased the irritability of the stomach, the pain in the head, and every symptom connected with the fever. I have long since abandoned it as absolutely pernicious."

OBITUARY NOTICE of JESSE YOUNG, M.D., of Chester. (Read before the Delaware Co. Medical Society, Sept. 15, 1852.) It is customary for learned associations, on the death of their distinguished members, to place on record some account of the deceased, with the view of doing honour to his memory, and to hold up for our example those deeds and intellectual and moral qualities which led to the attainment of general usefulness and public esteem.

In the effort to portray to the Medical Society the life and character of their late excellent President, it is not proposed to enter into much minuteness of detail, the occasion being one which calls less for a narration of the ordinary incidents of life than for the just representation of a medical character, interesting in its own developments, and worthy to be offered as a model of a wise, humane, and upright physician.

Dr. JESSE YOUNG was born near the Falls of the Schuylkill, Pennsylvania, on the 15th of October, 1796, and was removed to Delaware County, his future home, while he was still an infant; so that his life and services, as a man and physician, were spent upon the theatre of his early impressions, and in the community where many of his most admiring friends were those of his cherished companions and playmates in childhood. He was of Irish descent, his father having emigrated to this country in early life, and afterwards married Anne Griswold, a Quakeress, by whom he had three sons and two daughters. Of these, the two latter are all that are living. The subject of this notice was the oldest child, and was no less remarkable for his feebleness in infancy than for his frail constitution and delicate health in manhood. And, although he exercised much prudence for his personal safety, yet the duties of his profession subjected him to exposures, and he died on the 29th of August, 1852, at the age of 56, ten years younger than his personal appearance indicated.

His parents had neither the means nor taste to give him a good education; and he had no other facilities than those afforded by a plain county school. But these scanty privileges were seized upon by the child with all the eagerness

and aptitude which an instinctive disposition to acquire knowledge and a love of learning inspired. At the age of ten, he had ciphered through the arithmetic; and was so fond of his books, it is said, that he was never known to tear one; and so ambitious to be foremost in his class, that he spent hours at his studies, which should have been applied, no doubt, to play and recreation for the improvement of his health and general development of his physical forces. At the age of 14, he was put an apprentice for five years to an apothecary, in Philadelphia, but owing to some disappointment to his expectations, his indentures were given up at the end of three years, when he returned home, and engaged in school-teaching at Fairlamb's school-house, in Middleton. Some time afterwards, fancying a change of occupation, he entered Joseph Black's dry-good and grocery store in Chester. While an apprentice, he had the misfortune to dislocate and injure his elbow-joint, which continued weak, and was considerably abridged in its movements during the remainder of his life; though the fact was not known to some of his intimate friends. After a trial of six months' store-keeping, he found this condition of his arm attended with so much inconvenience in measuring and handling goods, that he abandoned the business, and resumed teaching as an employment more befitting his feeble health and weak arm. We now find him an active member of a debating society, and under the direction of Dr. Humphrey, prosecuting in a quiet way the study of medicine, which it is supposed was commenced while he was in the drug-store. He attended his first course of lectures during the winter of 1821-2, and in the spring, accompanied a friend on a visit to Phoenixville, where the chills and intermittent fever were prevailing among the workmen along the canal. Knowing him to be a student of medicine, his services were solicited, and he at once engaged in practice. This was a piece of good fortune as unexpected to him as it was gratifying; and in the following fall, he found himself in possession of funds quite sufficient to attend another course of lectures. He wrote his inaugural essay on *The Local Origin of Diseased Action*, and received his degree of Doctor of Medicine from the University of Pennsylvania in the spring of 1823, at the time when the names of Physick, Coxe, Chapman, James, Gibson, and Horner gave to that institution an importance and fame known to no other school of this country. He also became a member of the Philadelphia Medical Society during the spring of his graduation, when that Association was presided over by Dr. Physick.

He thus entered upon his professional mission, superseding Dr. Harlin at Sneath's Corner, the place of his late residence. In January, 1830, finding himself in the possession of a comfortable practice, he married Phebe Anne Edwards, by whom he had nine children. On the 7th of February, 1844, he met with a domestic affliction in the death of his wife. In September, 1845, he married Sarah Ann Eaches, his second wife, who bore him three children. These three with four sons and two daughters by his first wife survive him.

Dr. Young was a plain, unpretending man, who pursued the even tenor of his way according to the dictates of his better judgment, and appropriated neither time nor material to mere show. His thoughts and actions but reflected the purity of their source, and were those of a man who attached some personal accountability to what he did. In his business transactions, he was scrupulously correct; being always careful to live within his means, and not to incur liabilities which he was not able to meet. He rarely enforced his claims, but sensitive to the sufferings of all, he dispensed his services with a liberal hand, and was so perfectly natural and easy in his social relations and intercourse with the world, and in his general deportment through life exhibited so much sincerity and simplicity of character, that he enjoyed the confidence and esteem of those who knew him.

In his temperament, he was naturally excitable, but liberal in his sentiments, and charitable towards the weaknesses of others. He governed himself so well, and his affairs with so much system, that he exhibited a life of uniformity, and rarely appeared to be in a hurry. And there are hundreds in this community who can testify to the truth of this, if they will recall to mind the composure with which he received their pressing messages, and the mercy which he was wont to exercise towards his faithful animal, in responding to them. It was sometimes a source of no little amusement to a disinterested

observer to witness the doctor moving to these cases on foot leading his horse. But his arrival spread so much satisfaction through the household, that the anxiety of waiting was forgotten in the general gratitude they felt for his services.

His sympathies, beyond the limits of his profession, induced him to take an interest in the general topics of the day, and, when occasion offered, to lend them his influence in debating societies, but more particularly by the force of his pen through the public papers. In 1847, he was appointed revenue commissioner for this judicial district, to proportion and equalize the taxes of the State. This trust he discharged with credit to himself and satisfaction to those whose interest he represented. For the last two years, in co-operation with Dr. G. Smith, he has been engaged in making botanical observations in this county for the Smithsonian Institution. Botany was a study pleasing to his taste, and he prosecuted it with zeal and interest; thus amusing himself many an hour in passing from patient to patient.

As a physician, Dr. Young stood in his true character, and enjoyed the confidence of this community. He was a careful observer of the phenomena of disease, and his mind was well trained to its patient investigation. In medicine, as in everything else, he was the genuine coinage of candour and honesty. He passed by speculative theories and visionary doctrines to seize upon the practical and useful in his profession; and no one adhered more strictly to what he conceived to be the interest and well-being of his patient. In the treatment of disease, he looked to the inherent powers of the system as the great restorative principle; and on remedial agents as the instruments to control and direct that principle, and render it subservient to health. To this end, he selected medicines in relation to cause and effect, and administered them with care and judgment. Entertaining these views, he was not what would be called a heroic practitioner. And his eminent success with his patients is to be ascribed much to this fact.

He was a frequent and valued contributor to the *American Journal of the Medical Sciences*. Within the last twenty years he has had perhaps more medical students under his care than all the other physicians of the county. Towards these he manifested much personal kindness, and took a deep interest in their future welfare. In relation to the ethics of the profession, he was high-minded and generous.

In the death of Dr. Young, our Society has lost its esteemed president, and the individual members an agreeable companion and kind friend. On the 16th of May, 1850, Drs. Martin, Emanuel, Harvey, R. K. Smith, Heyshan, and Owen assembled in Chester, and effected a temporary organization for a medical Society. At a subsequent meeting, held May 30, a constitution and by-laws were adopted. Dr. Young joined this little band, and was unanimously elected president of the Society. Under his direction and services, the institution has prospered, till we now enroll as members more than half the physicians of the county.

Our late president has descended to the tomb; and we deeply feel his absence from among us. But he has left us the example of his professional excellence and usefulness. Let us emulate his virtues; and, to compensate our loss, let every member make new exertions for the prosperity of the Society, and be more careful to be present at its meetings.

For the last few years, Dr. Young experienced occasional inconvenience from a spinal source. In his recent illness, he was attacked more severely than on previous occasions, and expressed his belief that it would prove to be his last. Effusion in his chest soon followed with a general surrender of his vital forces. In early life, he had entertained misgivings of the truth of Christianity. But upon examination and a maturer judgment, the conviction of his error forced itself upon him, and he adopted for his future rule of faith the doctrines and precepts contained in the Bible. With these views of his present condition and future hopes, he made his peace with the world, and, trusting in the protecting hand of his Redeemer, peaceably and calmly passed from this world.

His funeral was attended by an almost unprecedented concourse, who met to pay their parting tribute to one who will long retain a place in the memory of this community.

JOSHUA OWENS, M. D.

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TO READERS AND CORRESPONDENTS.

We have received, from Dr. George C. Blackman, an account of a very extraordinary case of Hermaphroditism, which we have been prevented inserting in this Number, in consequence of the drawing, with which it is to be illustrated, not having come to hand. The author will oblige us by forwarding the cast or drawing as early as possible.

Several communications are on hand, which shall receive early attention.

We had hoped to be able to give, in our present number, a Review of Dr. H. Smith's beautifully illustrated *Operative Surgery*; but the friend who undertook that task, when it was nearly completed, was attacked by illness, which prevented his preparing it in time. It shall appear in our next number.

The following works have been received:—

An Introduction to Clinical Medicine. Six Lectures on the Method of examining Patients; Percussion; Auscultation; the Use of the Microscope; and the Diagnosis of Skin Diseases. By JOHN HUGHES BENNETT, M. D., F. R. S., Professor of the Institutes of Medicine, and of Clinical Medicine in the University of Edinburgh. Second edition, with numerous wood-cuts. Edinburgh, 1853. (From the Author.)

On Near Sight, Aged Sight, Impaired Vision, and the Means of Assisting Sight. By WILLIAM WHITE COOPER, F. R. C., S. E., Ophthalmic Surgeon to St. Mary's Hospital, Senior Surgeon to the North London Eye Infirmary and to the Artillery Company, &c. &c. &c. Second edition. London, 1853. (From the Author.)

On Diseases of Women and Ovarian Inflammation, in relation to Morbid Menstruation, Sterility, Pelvic Tumours, and Affections of the Womb. By EDWARD JOHN TILT, M. D., Senior Physician to the Farringdon General Dispensary, and to the Paddington Free Dispensary for the Diseases of Women and Children, &c. &c. Second edition. London, 1853. (From the Author.)

Bethlem Hospital. The Observations of the Governors upon the Report of the Commissioners in Lunacy to the Secretary of State on Bethlem Hospital with Appendices. London, 1852. (From Dr. Jno. Webster.)

Syphilitic Diseases; their Pathology, Diagnosis, and Treatment, including Experimental Researches on Inoculation, as a Differential Agent in Testing the Character of these Affections. By JOHN C. EGAN, M. D., M. R. I. A., Fellow and Licentiate of the Royal College of Surgeons in Ireland, formerly Surgeon to the Westmoreland Lock Hospital, &c. &c. London: John Churchill, 1853. (From the Author.)

Appendix to the Treatise on the Structure, Diseases, and Injuries of the Bloodvessels. With Statistical Deductions. Being the Essay to which the Jacksonian Prize, for the year 1844, was awarded by the Royal College of Surgeons of England. By EDWARD CRISP, M. D., Physician to the Metropolitan Dispensary, &c. London, 1851. (From the Author.)

On Perforating Ulcer of the Stomach, from Non-Malignant Disease: Part I. By EDWARD CRISP, M. D., Physician to the Metropolitan Dispensary. Reprinted from the "London Medical Examiner." London, 1852. (From the Author.)

A System of Practical Surgery. By WM. FERGUSON, F. R. S., Professor of Surgery in King's College, London. Fourth American from the third and enlarged London edition. With three hundred and ninety-three illustrations. Philadelphia: Blanchard & Lea, 1852. (From the Publishers.)

On Diseases of the Liver. By GEORGE BUDD, M. D., F. R. S., &c. Second American from the last and improved London edition. With coloured plates and wood-cuts. Philadelphia: Blanchard & Lea, 1853. (From the Publishers.)

Manual of Physiology. By WM. SENHOUSE KIRKES, M. D., and JAMES PAGET, F. R. S. Second American from the second London edition. With one hundred and sixty-seven illustrations. Philadelphia: Blanchard & Lea, 1853. (From the Publishers.)

What to observe at the Bedside and after Death in Medical Cases. Published under the authority of the London Medical Society of Observation. Philadelphia: Blanchard & Lea, 1853. (From the Publishers.)

Atlas of Pathological Histology. By Dr. GOTTFRIED GLUGE, Professor of Physiology and Pathological Anatomy in the University of Bruxelles; Member of the Royal Academy of Sciences of Bruxelles; etc. Translated from the German by JOSEPH LEIDY, M. D., Pathologist to St. Joseph's Hospital, Philadelphia, etc. etc. With three hundred and twenty figures, plain and coloured, on twelve copperplate engravings. Philadelphia: Blanchard & Lea, 1853. (From the Publishers.)

Transactions of the American Medical Association, instituted 1847. Vol. V. Philadelphia, 1852.

Quarterly Summary of the Transactions of the College of Physicians of Philadelphia, from November 3, 1852, to January 5, 1853, inclusive.

Transactions of the Medical Society of the State of North Carolina, at its third annual meeting in Wilmington, North Carolina, May, 1852. Wilmington, 1852.

Faculté de Médecine de Paris. Thèse pour le Doctorat en Médecine présentée et soutenue le 5 Août, 1852. Par SAMUEL LEE BIGELOW, né à Boston, U. S., M. D. Recherches sur les calculs de la vessie, et sur leur analyse micro-chimique. 4to. avec un Atlas folio, Planches VIII. Paris, 1852. (From the Author.)

Minutes of two Annual Meetings of the Medical Missionary Society in China; including the Sixteenth Report of its Ophthalmic Hospital at Canton, for the years 1850 and 1851. Canton, 1852. (From Dr. P. Parker.)

Report of the Hospital at Ningpo, for 1852; under the Medical Missionary Society in China. By DANIEL J. MACGOWAN, M. D. Canton, 1852. (From the Author.)

Sixteenth Annual Report of the Trustees and Superintendent of the Vermont Asylum for the Insane, August, 1852. Brattleboro', 1853.

Tenth Annual Report of the Managers of the State Lunatic Asylum of the State of New York. Transmitted to the Legislature, Feb. 16, 1853. Albany, 1853. (From Dr. T. R. Beck.)

Report of the Obstetric Committee on Anæsthesia in Midwifery, and the Speculum Uteri. By HENRY MILLER, M. D., of Louisville, Ky. Reprinted for private distribution from the Transactions of the Kentucky State Medical Society. Louisville, 1853. (From the Author.)

Report of the Board of Managers of the [Missouri] State Lunatic Asylum to the Seventeenth General Assembly. Jefferson City, 1853.

Annual Reports of the Officers of the New Jersey State Lunatic Asylum at Trenton, for the year 1853. Trenton, 1853.

Report of the Pennsylvania Hospital for the Insane, for the year 1852. By THOMAS KIRKBRIDE, M. D., Physician to the Institution. Philadelphia, 1853.

Report of the Board of Visitors of the Maryland Hospital (for the Insane at Baltimore) to the General Assembly of Maryland, for the year 1852. Baltimore, 1853.

Education of Idiots. An Appeal to the Citizens of Philadelphia. Philadelphia, 1853. (From J. B. Richards, Esq.)

A Treatise on the Causes, Constitutional Effects, and Treatment of Uterine

Displacements. By WILLIAM EDWARD COALE, M. D. Boston, 1852. (From the Author.)

New Views on Provisional Callus. By FRANK H. HAMILTON, A. M., M. D. Buffalo, 1853. (From the Author.)

Hydatids of the Liver, Operation and Cure. By J. EDWARD WEBER, M. D. New York, 1852. (From the Author.)

The Obstetric Catechism; containing 2347 Questions and Answers on Obstetrics Proper. By JOSEPH WARRINGTON, M. D. With one hundred and fifty illustrations. Philadelphia: Barrington & Haswell, 1853. (From the Publishers.)

Remarks on Osteo-Aneurism, with a Case involving the Condyles of the Left Femur. By J. M. CARNOCHAN, M. D., Professor of the Principles and Operations of Surgery in the New York Medical College; Surgeon to the State Emigrants' Hospital, etc. etc. With two plates. From the New York Medical Gazette. New York, 1853. (From the Author.)

Elephantiasis Arabum of the Right Inferior Extremity, successfully treated by Ligature of the Femoral Artery. By J. M. CARNOCHAN, M. D., Professor of the Principles and Operations of Surgery in the New York Medical College; Surgeon to the State Emigrants' Hospital, etc. etc. With a plate. From the New York Journal of Medicine, September, 1852. New York, 1852. (From the Author.)

Prize Essay. On Variations of Pitch in Percussion and Respiratory Sounds, and their Application to Physical Diagnosis. By AUSTIN FLINT, M. D., of Buffalo, New York. Reprinted for private distribution from the Transactions of the American Medical Association, 1852. Buffalo, 1852. (From the Author.)

Materia Medica, or Pharmacology and Therapeutics. By WILLIAM TULLY, M. D. Vol. I., Nos. 2, 3, 4. Springfield, Mass.: published by Jefferson Church, M. D., 1852. (From Jefferson Church, M. D.)

Principles of Organic and Physiological Chemistry. By CARL LÖWIG, Ordinary Professor of Chemistry in the University of Zurich, etc. Translated by DANIEL BREED, M. D., of the U. S. Patent-Office, etc. Philadelphia: A. Hart, late Carey & Hart, 1853. (From the Publisher.)

Tenth Report to the Legislature of Massachusetts relating to the Registry of Births, Marriages, and Deaths, in the Commonwealth, for the year ending Dec. 31, 1851. By AMASA WALKER, Secretary of Commonwealth. Boston, 1852. (From the Author, J. Curtis, M. D.)

An Examination of the Question of Anæsthesia arising on the Memorial of CHARLES THOMAS WELLS. Presented to the United States Senate, Second Session, Thirty-Second Congress, and referred to a Select Committee, of which the Hon. ISAAC P. WALKER is Chairman. Prepared for the information of said Committee.

Report of the Select Committee to which was referred the various Memorials, in regard to the Discovery of the Means by which the Human Body is rendered insensible to Pain under Surgical Operations. Made to the Senate by the Hon. ISAAC P. WALKER. Washington, 1853.

Lectures on the Science of Life Insurance, addressed to Families, Societies, Trades, Professions, Considerate Persons of all Classes. By MOSES L. KNAPP, M. D., Secretary of the Fraternal Mutual Life Insurance Company, etc. Second edition. Philadelphia: E. S. Jones & Co., 1853.

A Clinical Phrase-Book; in English and German, containing the usual Questions and Answers employed in examining and prescribing for Patients, &c.; with an English-German, and German-English Pronouncing Lexicon, &c. &c. By MONTGOMERY JOHNS, M. D. Philadelphia: Lindsay & Blakiston, 1853. (From the Publishers.)

The Opium Trade; including a Sketch of its History, Extent, Effects, &c., as carried on in India and China. By NATHAN ALLEN, M. D. Second edition. Lowell, 1853. (From the Author.)

Anniversary Discourse before the New York Academy of Medicine, delivered in the Chapel of the University of New York, November 3, 1853. By F. CAMPBELL STEWART, M. D. Published by order of the Academy. New York, 1853. (From the Author.)

An Address at the Laying of the Corner Stone of the Savannah Medical Institute, delivered by the Hon. JNO. MACPHERSON BERRIEN, on the 17th of Jan. 1853. Savannah, 1853.

Relations of Popular Education with the Progress of Empiricism. Annual Address read before the New Jersey State Medical Society, at the eighty-seventh Anniversary held at Trenton, January 25, 1853. By OTHNEIL H. TAYLOR, M. D., of Camden, President for 1852. Published by order of the Society. Burlington, 1853. (From the Author.)

An Introductory Lecture on the Treatment of Disease, delivered before the Medical Class at the Massachusetts Medical College, in Boston, November 3, 1852. By JACOB BIGELOW, M. D., Professor of Materia Medica and Clinical Medicine in Harvard University, and Senior Physician of the Massachusetts General Hospital. Boston, 1853. (From the Author.)

A Discourse delivered to the Class of the Kentucky School of Medicine, November 3, 1852, introductory to a Course on Surgery. By JOSHUA B. FLINT, Professor of Principles and Practice of Surgery. Louisville, 1852. (From the Author.)

History of the Medical Department of the University of Louisville; an Introductory Lecture delivered November 1, 1852. By LUNSFORD P. YANDELL, M. D., Professor of Physical and Pathological Anatomy. Louisville, 1852. (From the Author.)

The Incentives, Means, and Rewards of Study; an Introductory Address delivered at the opening of the thirty-third Annual Course of Lectures in the Medical College of Ohio, November 1, 1852. By L. M. LAWSON, M. D. Cincinnati, 1852. (From the Author.)

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Annales Médico-Psychologiques. Edited by Drs. BAILLARGER, BRIERRE DE BOISMONT, and CERISE. October, 1852.

Gazette Médicale de Paris. Nos. 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 1852, and Nos. 1, 2, 3, 1853.

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The Journal of Psychological Medicine and Mental Pathology. Edited by FORBES WINSLOW, M. D. January, 1853.

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The Dublin Quarterly Journal of Medical Science. February, 1853.

Guy's Hospital Reports. Edited by E. L. BIRKETT, M. D., and ALFRED POLAND, F.R.C.S. December, 1852.

Canada Medical Journal and Monthly Record of Medical and Surgical Science. Edited by R. L. MACDONNELL, M. D., and A. H. DAVID, M. D. January, February, 1853.

The American Journal of Insanity. Published by the New York State Lunatic Asylum, Utica. January, 1853.

The American Journal of Science and Arts. Conducted by Professors B. SILLIMAN, B. SILLIMAN, Jr., and JAMES DANA, aided by WOLCOTT GIBBS, and ASA GRAY. January, March, 1853.

The American Journal of Pharmacy. Published by authority of the Philadelphia College of Pharmacy. Edited by WM. PROCTER, Jr., Professor of Pharmacy. January, March, 1853.

Boston Medical and Surgical Journal. Edited by J. V. C. SMITH, M. D. January, February, March, 1853.

The Southern Medical and Surgical Journal. Edited by L. A. DUGAS, M. D. January, February, March, 1853.

The New York Medical Times. Edited by H. D. BUCKLEY, M. D. January, February, March, 1853.

The New York Medical Gazette and Journal of Health. Edited by D. M. REESE, M. D. January, February, 1853.

The Southern Journal of the Medical and Physical Sciences. Editors, Drs. JNO. W. KING, WM. P. JONES, R. O. CURREY, and B. WOOD. January, March, 1853.

The Ohio Medical and Surgical Journal. Edited by RICHARD L. HOWARD, M. D. January, March, 1853.

The New York Journal of Medicine. Edited by S. S. PURPLE, M. D. November, 1852, January, March, 1853.

The New Orleans Medical and Surgical Journal. Edited by A. HESTER, M. D. January, March, 1853.

Buffalo Medical Journal and Monthly Review of Medicine and Surgery. Edited by AUSTIN FLINT, M. D. January, March, 1853.

The Medical Examiner. Edited by F. G. SMITH, M. D., and JOHN B. BIDDLE, M. D. January, February, March, 1853.

The East Tennessee Record of Medicine and Surgery. Edited by FRANK A. RAMSEY, M. D. January, 1853.

The North-Western Medical and Surgical Journal. Edited by W. B. HERRICK, M. D., assisted by H. A. JOHNSON, M. D. December, 1852, January, February, 1853.

The Western Medico-Chirurgical Journal. Edited by J. F. SANFORD, M. D. December, 1852, January, 1853.

The Medical Recorder. Edited by A. P. MERRILL, M. D., and C. F. QUINTARD, M. D. January, 1853.

The New Orleans Monthly Medical Register. Edited by A. FOSTER AXSON, M.D. January, February, March, 1853.

The Stethoscope and Virginia Medical Gazette. Edited by P. C. GOOCH, M.D. January, February, March, 1853.

The American Journal of Dental Science. Edited by CHAPIN A. HARRIS, M.D., D. D. S., and ALFRED A. BLANDY, M.D., D. D. S. January, 1853.

The New York Journal of Pharmacy. Published by authority of the College of Pharmacy of the City of New York. Edited by BENJ. W. MCCREADY, M.D., Professor of *Materia Medica*, &c. January, February, March, 1853.

The Western Lancet. Edited by L. M. LAWSON, M.D. January, February, March, 1853.

Charleston Medical Journal and Review. Edited by D. J. CAIN, M.D., and F. P. PORCHER, M.D. January, 1853.

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Nashville Journal of Medicine and Surgery. Edited by W. K. BOWLING, M.D., and PAUL F. EVE, M.D. February, 1853.

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Annals of Science. Conducted by HAMILTON L. SMITH, A.M. January, February, March, 1853.

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ERRATA.

Page 116, lines 12 and 16 from the bottom, for *cirrhus* read *cirrhosis*.

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THE
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ART. I.—*The Spirometer; its Use in detecting Disease of the Lungs.* By WILLIAM PEPPER, M. D., one of the Physicians of the Pennsylvania Hospital.

NOTWITHSTANDING the great degree of perfection now attained in the diagnosis of diseases of the chest, it must still be admitted, even by those most conversant with percussion and auscultation, that these means alone are occasionally inadequate for the detection of incipient phthisis. This is particularly true, too, in regard to disseminated tubercles of both lungs, and where a large portion of the pulmonary tissue yet remains in a healthy condition; under these circumstances, the percussion is but little if at all impaired, and being the same on both sides, can hardly afford any positive indication as to the true nature of the case. The same remark may in a measure be applied to auscultation; for, although a jerking inspiration with prolonged expiration, or a respiratory murmur puerile at one point and feeble at another, may lead us to suspect more or less pulmonary obstruction, it is still true that these signs are occasionally absent when the tubercles are small and equally scattered throughout the lungs. In such cases, the physical signs are frequently less important than the general symptoms, such as slight emaciation and debility, with perhaps more or less difficulty of breathing under slight exercise, or an occasional dry cough with some frequency of pulse; and these symptoms are entitled to the greatest consideration when occurring in one predisposed to phthisis, and particularly so if preceded by an attack of hæmoptysis.

By a careful combination of the general and local signs in connection with the previous history, a correct diagnosis can no doubt generally be made; but, for reasons already mentioned, there will be an occasional case in which these

means may fail; and it is precisely under such circumstances that the spirometer is by some supposed to afford important aid. Dr. Hutchinson, in his elaborate report upon this subject (*Med.-Chir. Transactions*, vol. xxix.), mentions several very interesting cases in which he was enabled to predict the existence of pulmonary tubercles by means of the spirometer long before any of the usual signs could be detected; he also alludes to several instances where by aid of the same instrument he formed a correct diagnosis, and foretold the recovery of patients who had been considered by competent judges hopelessly ill of consumption; and from his large experience concludes that it is a precise, easy, and safe method of detecting disease of the lungs. His experiments, however, were more especially confined to healthy individuals; and, after patiently investigating more than 2000 cases, he has been enabled to deduce certain general rules by which the healthy standard of any given person may at once be estimated. Thus he found that, for every inch in height over five feet, the *vital capacity*, or amount of air expired after a forcible inspiration, was increased eight cubic inches, so that a person of six feet in height should have a capacity ninety-six inches more than one of only five feet. This conclusion appears the more remarkable from the well-known fact that the difference of height depends rather upon length of the lower extremities than of the trunk—the sitting height of most men (between five and six feet) being on an average about three feet. But what appears most to influence vital capacity is the mobility of the chest—as indicated by the difference between its circumference during forced inspiration and expiration—the average in healthy individuals being about three inches. A small chest having a large mobility will also have a larger vital capacity than one of much greater dimensions, and where the respiratory movements are imperfectly performed; hence, where the chest is much loaded with fat, its movements are embarrassed, and the capacity, consequently, diminished. Dr. Hutchinson found that, for every additional pound in weight from about 150 up to 155, the vital capacity was increased one cubic inch, but that from beyond this point it appeared to decrease in about the same proportion with any augmentation in weight. This rule, however, has reference to a fixed height of five feet six inches, and could only be applied to those of greater stature by first ascertaining the difference of weight in relation to height; this he found to be about five pounds for every inch, so that a man five feet six inches, weighing 150 pounds, an equivalent weight for one five feet eleven inches would be about 175 pounds; consequently up to this point his vital capacity should increase, whilst beyond it, it would diminish one cubic inch for every additional pound.

Age also appears to exercise an important influence: thus, it was ascertained, that the vital capacity increased from the fifteenth up to the thirtieth year, but that from this time it decreased at the rate of one and a half cubic inches for every additional year.

The average vital capacity in individuals aged about thirty, and weighing

about 150 pounds, being 225 cubic inches, it appears reasonable to conclude that anything far short of this standard, and not explicable by the above-mentioned modifying circumstances, may be ascribed to some pathological condition either of the respiratory organs or abdominal viscera; the exact character, however, of the morbid condition could only be ascertained by a careful examination of the physical signs and general symptoms, since the diminished vital capacity might depend upon bronchitis, pleurisy, emphysema, chronic pneumonia, or tubercles. In like manner, an enlarged spleen or liver, an inflammation of the peritoneum or an effusion into its cavity would, by preventing the descent of the diaphragm, necessarily interfere more or less with the respiratory movements. How far the mobility of the chest, and consequently its capacity may be diminished by mere debility or want of muscular power, is a question of great importance in estimating the value of the spirometer; for, should it be ascertained that the vital capacity is in proportion to or even greatly influenced by the mere strength of the individual, it is evident that much caution should be exercised in the adoption of any indications afforded by this instrument as to the existence of pulmonary disease, since it is well known that deficiency of muscular power is by no means incompatible with general good health or perfect integrity of the different organs. Dr. Hutchinson, in alluding to the great power necessary for overcoming the elasticity of the ribs and lungs during forcible inspiration, states: "It is possible that the cachectic condition, in this early stage of the disease (tubercular phthisis), may disable the patient to overcome this resistance, and therefore the vital capacity become diminished by mere want of muscular power." The respiratory power is clearly proved by the same author to be much less in diseased than in healthy individuals, as might have been expected, because weakness is the most prominent symptom of disease; occupation also appeared to exercise an important influence in this respect, and hence the respiratory muscles were found to be more powerful in seamen, firemen, draymen, wrestlers, glassblowers, and trumpeters, than in gentlemen, compositors, and those who led sedentary lives. The difference, however, was not so manifest in the inspiratory as in the expiratory efforts, owing to the fact that the muscles concerned in the former were most frequently brought into play in many of the ordinary avocations of life.

The above conclusions, the result of direct experiment, are certainly in strict conformity with what might have been anticipated by mere reflection upon the subject; for, whilst it appears reasonable to suppose that healthy men, having the same physical development, should be possessed of a like vital capacity, it is also equally apparent that the well-developed man, in the prime of life, and engaged in some active pursuit, should have greater capacity than the one who is small, feeble, or of sedentary habits. Supposing that by the above rules the healthy standard of an individual could be ascertained, it certainly appears probable that any marked deficiency in this respect might fairly be

ascribed to disease; at the same time, it is important that the strength of the patient should be taken into the calculation, and that a reasonable allowance should be made when this is defective. In the *Medical Examiner*, vol. viii. p. 51, are some remarks by Prof. Jackson on the spirometer, in the course of which, he states it as his opinion that it is muscular power, and not height, that governs the vital capacity; and this view appears in a measure to be sustained by the fact that in those pursuits which are best calculated for the development of the respiratory muscles, we also find the greatest capacity. With the view of testing this, as also several other points of interest in connection with this subject, I was induced to use the spirometer in a variety of pulmonary affections that came under my notice in the wards of the hospital during the spring of 1852; at the same time, the vital capacity of healthy individuals was obtained, as also that of several suffering with cardiac disease, and of others convalescing from acute affections, so that I might be enabled to form a comparative estimate in these different cases. The instrument used was made after the plan recommended by Mr. McEuen; consisting of a cylinder containing water, into which another cylinder is inverted, this latter being counterpoised by a weight attached to a cord, and also having a small aperture to which is adapted a movable piece of metal, so as to allow the escape of air when the cylinder is depressed. The cord passes over a wheel about one foot in diameter, which rotates as the cylinder ascends from the pressure of the expired air, and points out by means of a scale and index the number of cubic inches introduced. The person using the instrument, after a forcible inspiration, expires through a flexible tube which communicates with the lower part of the inverted cylinder.

	Circumference.	Height.	Weight.	Mobility.	Vital capacity.	Occupation.	Age.
1	28	5.6	120	2 $\frac{3}{4}$	160	Physician	45
2	32	5.7 $\frac{1}{2}$	131	2	225	Seaman	41
3	37	5.4	145	4	270	"	24
4	37 $\frac{1}{2}$	5.9	180	4	210	Physician	42
5	34	5.5 $\frac{1}{2}$	128	4	230	Seaman	21
6	38	5.10 $\frac{1}{2}$	202 $\frac{1}{2}$	4	270	"	27
7	36	5.6	141	3 $\frac{1}{2}$	230	"	19
8	32	5.6 $\frac{1}{2}$	134	4	210	"	22
9	35	5.8	153 $\frac{1}{2}$	4	230	"	36
10	35	5.8	161	5	250	"	24
11	38	5.10	169 $\frac{1}{2}$	2 $\frac{1}{2}$	270	"	28
12	36	5.8	160	3 $\frac{1}{2}$	180	"	23
13	34	5.8 $\frac{1}{2}$	151	3	250	Physician	21
14	33	5.7	122	3 $\frac{1}{2}$	250	Labourer	23
15	32	5.7 $\frac{1}{2}$	123	2	210	Watch-case maker	23
16	37 $\frac{1}{2}$	5.10 $\frac{1}{2}$	165	3 $\frac{1}{2}$	200	Seaman	45
17	32	5.5	124	2 $\frac{1}{2}$	220	Turner	18
18	33	6.	151	3	230	Moulder	19
19	34	5.10	147 $\frac{1}{2}$	4	250	Physician	24
20	32	5.10	144	3	225	"	23
Mean	34 $\frac{1}{2}$	5.8	148	3 $\frac{1}{2}$	228		27

All the persons referred to in this table were in good health, and it will be perceived that the mean vital capacity, as also the circumference and mobility of the chest, are unusually great, whilst at the same time the average height is only five feet six inches; inasmuch as three-fourths of them were seamen, or persons engaged in some active pursuit calculated to invigorate the respiratory muscles, it appears reasonable to conclude that their large vital capacity depended in a measure upon this cause. On the other hand, when we come to examine the individual cases, it will be perceived that the greatest capacity frequently coincided with the greatest height; thus Nos. 6 and 11 had a capacity of 270 cubic inches and a height of five feet ten inches; so it is with Nos. 10 and 13, who were fully five feet eight, and had a capacity of 250. Nos. 3 and 18, however, present very striking exceptions to this rule, the former, with a capacity of 270, being only five feet four inches high, whilst the latter, although six feet, had but a capacity of 230; it is important, however, to bear in mind that the first named had a circumference of thirty-seven and a mobility of four inches, and that at the same time he was a man of unusual muscular development, whereas the second had but a circumference of thirty-three and a mobility of three. The above table also presents several other points of interest, but the number of persons referred to is perhaps too small to enable us to generalize from them.

With the view of still further ascertaining the influence of strength upon vital capacity, the spirometer was used by several persons just convalescing from severe illness; and who, consequently, were more or less feeble, though free from all pulmonary or other disease.

	Circumference.	Height.	Weight.	Mobility.	Vital capacity.	Occupation.	Age.	Convalescent from
1	32	5.7	108	4½	120	Labourer	21	Typhoid fever.
2	32	5.9	121	3	220	Seaman	22	" "
3	35	5.8½	137	4	190	Labourer	34	" "
4	32	5.5½	108½	3	210	Waiter	25	Hæmaturia.
5	33	5.4	115	2½	130	Weaver	30	Acute rheumatism.
Mean	33	5.6	117	3½	174		26	

As far as the limited number of cases in the above table can prove anything, they certainly go to show that mere debility may very materially diminish vital capacity; the mean being but 174, or about 40 cubic inches less than when the strength is unimpaired. It should be observed, however, that the weight was also below par.

As the amount of air drawn into the lungs by forced inspiration must necessarily be more or less influenced by whatever tends to obstruct or diminish the size of the bronchial tubes, it appears reasonable to conclude that the vital capacity would be impaired in bronchitis, or mere congestion of the bronchial mucous membrane. The following cases were selected to test this point:—

	Circumference.	Height.	Weight.	Mobility.	Vital capacity.	Occupation.	Age.	Disease.
1	36	5.5	181	4	280	Weaver	40	Chronic bronchitis.
2	34	5.4 $\frac{1}{2}$	127	5	190	Seaman	30	Acute “
3	35	5.7 $\frac{1}{2}$	140	4	200	“	28	“ “
Mean	35	5.6	182	4 $\frac{1}{2}$	206		32	

The first case was of four months' duration, and was attended with sonorous and mucous râles throughout the posterior parts of both lungs; the general health and strength, however, were but little if at all impaired. Under the use of the balsam of copaiva, he rapidly improved, and was discharged well about one month after admission. The second came into the hospital suffering with jaundice, and the bronchial affection supervened whilst in the institution. He was somewhat oppressed, and sonorous and sibilant râles could be heard throughout both lungs, but more especially on the right side. Expectoration muco-puriform, prostration slight. The last case was recent, and unattended by marked constitutional disturbance. The usual râles existed in the posterior part of the lungs to a considerable extent. When we consider that one of these patients was more or less exhausted by previous disease, and that two of them were below the average height and weight, it would appear that their vital capacity was scarcely diminished by the bronchial affection; this result is contrary to what might have been anticipated, and is probably owing to the circumstance of the inflammation not having extended to the minute bronchial tubes.

In cases of cardiac disease, it is well known that the lungs frequently become congested, giving rise to asthma, pulmonary apoplexy, or œdema; and it, therefore, appeared of some interest to ascertain how far the vital capacity might be diminished under such circumstances. With this view, the following cases were selected:—

	Circumference.	Height.	Weight.	Mobility.	Vital capacity.	Occupation.	Age.	Disease.
1	33	5.4 $\frac{1}{2}$	131	2 $\frac{1}{2}$	180	Seaman	39	Hypertrophy with disease of aortic valves.
2	38	5.7 $\frac{1}{2}$	136 $\frac{1}{2}$	2 $\frac{1}{2}$	160	Coachman	27	Hypertrophy with disease of mitral valves.
3	36 $\frac{1}{2}$	5.9 $\frac{1}{2}$	176	2 $\frac{1}{2}$	100	Well-digger	39	Slight hypertrophy with disease of aorta.
Mean	34	5.6	148	2 $\frac{3}{4}$	130		35	

In the first, there was extensive dulness on percussion over the cardiac region, with increased impulse, and a harsh, bellows sound, heard more distinctly along the aorta than over the apex of the heart. He was somewhat oppressed upon taking exercise, but had no dropsy, nor was his strength impaired. His disease was attributed to an injury received two months before admission. In the second, the dulness of the cardiac region was also very

great, and this part of the chest was slightly bulging; a double bellows, or saw sound, was heard over the same extent, but was most marked over the apex of the heart; the impulse of the heart was also much increased. The disease could be distinctly traced to a rheumatic attack with which the patient had suffered the previous year. In the last, there was œdema of the lower extremities, and considerable oppression; the respiratory murmur at the lower part of both lungs was in a measure marked by a subcrepitant râle, most probably the result of pulmonary œdema. Over the heart a distant rasping sound could be heard, but this was much louder over the sternum and in the course of the aorta. The disease was probably induced by intemperance and hard work.

In the first two cases, it will be perceived that the vital capacity and mobility are greatly diminished, and yet in neither of them was there any sign indicative of pulmonary disease. In the last case, however, the œdema of the lungs fully accounts for the imperfect respiratory movements. Judging from the above results, it would appear not improbable that extensive cardiac disease tends to diminish vital capacity—the average in these cases being only 130, or 95 less than in health. The mere debility was not sufficient to account for so great a deficiency.

Dr. Hutchinson refers to a case in which the pleuræ were adherent throughout, without having interfered with the mobility or capacity of the chest; and, from this single instance, is disposed to conclude (contrary to the generally received opinion) that freedom of respiratory movement is not prevented by such adhesions. He does not, however, state the character of the adhesions, whether loose and cellular, or firm and cartilaginous, or as the result of acute or chronic inflammation. And yet these distinctions are important; since, in the former, we can readily understand that the thoracic movements are but little impeded; whereas, in the latter, the contrary must necessarily pertain. The four cases of pleurisy referred to below may not prove uninteresting, as showing the influence of this disease upon vital capacity.

	Circumference.	Height.	Weight.	Mobility.	Vital capacity.	Occupation.	Age.	Disease.
1	30	5.1	104	2½	100	Cook	24	Chronic pleurisy.
2	35	5.4½	134	4	140	Stonemason	31	Pleuritic effusion.
3	29	5.4	118	2	120	Domestic	36	Adhesions of pleuræ.
4	33½	5.7½	138	2½	170	Brickmaker	27	Pleuritic effusion.
Mean	32	5.4	121	2¾	132		29	

The first was that of a female who entered the hospital January, 1852, with pleuritic effusion of left side, as indicated by dulness of percussion, slight prominence, feebleness of respiration, and ægophonic resonance of the voice. The spirometer was not used in her case until March, when the above result was obtained; by this time, however, the effusion had in a great measure disap-

peared, but the side still remained flat and contracted, and the respiration feeble. About the middle of the month following (April), she was again seized with pleurisy of the right side, and attended by the usual signs indicative of effusion; at this time, the spirometer was once more used, and showed a loss of forty cubic inches since the first observation—her vital capacity now being only sixty; the mobility was also reduced to two inches, but at the same time her strength had improved, and she had gained seven pounds in weight. It will thus be perceived that both capacity and mobility were considerably diminished by old adhesions of the pleura, and that they were still further impaired by a moderate effusion on the opposite side. These results could not be ascribed to pain, since the patient was not suffering at the time the instrument was used. In the second, the disease was of three weeks' standing, and was evidently attended with considerable effusion into the right pleural cavity, as manifested by slight bulging at the lower part of the thorax—the respiratory murmur being inaudible at this part, but supplementary throughout the sound side—and also by dulness of percussion, which could be varied by changing the position of the patient. Here again the capacity was below the natural standard, as might have been anticipated from the pressure of the fluid upon the lung. His strength was but little impaired, and his occupation was well calculated to develop the muscular system. The third case was that of a female who had suffered with occasional stitches of the left side for several weeks before admission; the lower two-thirds of left thorax were dull and motionless, and the respiratory murmur was greatly diminished over the same extent; in the axillary region, however, there was a distinct friction-sound. No signs of tubercular deposit could be detected, and at the end of one month she left the hospital perfectly well. In this instance, the low vital capacity may fairly be attributed to pleuritic adhesions. The fourth and last case entered the hospital in May, having some weeks previously experienced severe pain of the left side; his strength, however, was not much reduced at the time of admission. Over the lower half of left thorax the vesicular murmur was scarcely audible; at this part, the percussion was also flat, and its extent could be varied by changing the position of the patient; he experienced slight difficulty of breathing upon taking exercise, but had neither cough nor expectoration. By the end of one month he had gained six pounds in weight, and most of the physical signs indicative of effusion had disappeared; the spirometer now showed a gain of thirty cubic inches in his vital capacity. In this instance, it is evident that the capacity was at first diminished by the effusion, and that it gradually improved as absorption went on; the remaining deficiency was probably due to the consequent pleuritic adhesions.

It is, however, especially in phthisis that the spirometer has been considered most useful in forming a correct diagnosis; and allusion has already been made to the opinions of Dr. Hutchinson upon this subject. According to this author, the disease may be detected in its very incipency by the aid of this instrument, since a very small deposition of tuberculous matter will

cause a considerable deficiency in the vital capacity. In confirmation of this opinion, he mentions the case of a young man who presented all the appearances of full health, but whose vital capacity was forty-seven cubic inches below the healthy standard; one week after using the spirometer, he had an opportunity of examining the lungs, and "found the left lung at the apex studded with miliary tubercles; the whole not extending beyond a square inch, the entire remaining portion being to all appearance healthy:" at the same time, he admits that it is difficult to comprehend why it is that the difference of the vital capacity should be so great when the organic disease is apparently so little. That so limited a tubercular deposit as that just alluded to should *per se* very materially interfere with the vital capacity is indeed quite inconceivable; and it is by no means improbable that the deficiency might in a great measure have been owing to some modifying influence which escaped the observer's attention. In a subject so complex, and where the results are so readily influenced by slight and perhaps inappreciable causes, we cannot be too careful how we generalize from a single fact; at the same time, I am by no means disposed to disparage the utility of the spirometer for the detection of some of the latent forms of phthisis, and particularly when the tubercles are numerous, and yet so disseminated as to give rise to but few if any marked physical signs. Under such circumstances, it is quite conceivable that the vital capacity might be greatly impaired; and when such deficiency could not be accounted for on the score of debility, bronchitis, pleurisy, or other disease, it might fairly be ascribed to the presence of tubercle. Moreover, even in those cases where both auscultation and percussion fully reveal the true nature of the case, they may not always point out the full extent of the disease, owing to the circumstance of a large portion of the lungs still being permeable to the air, and, consequently, not affording a good conducting medium. Most practitioners must have met with instances in which an examination *post mortem* showed a far greater amount of tubercular deposit than had been indicated by the physical signs; and it is highly probable that under such circumstances our prognosis as to the duration of life would have been more correct had the indications afforded by the spirometer entered into the calculation, since in all probability the vital capacity would have been found far below what might have been anticipated from the mere physical signs or other accompanying circumstances. Although, as a general rule, it may be true that the more the lungs are obstructed by tubercles the less will be their capacity, still, it will occasionally happen that, even when the physical signs afford unequivocal evidence of considerable local disease, the vital capacity will be but little below the healthy standard—not more perhaps than could be fully explained by the accompanying debility. But, before proceeding further, let us examine the general result obtained from the use of the spirometer in the various stages of phthisis; with this view, the following cases have been arranged in the tabular form, whilst at the same time a brief note of the stethoscopic indications will be appended, so that the reader, by referring to

the corresponding numbers, may at once be enabled to see the pathological condition of the lungs (as revealed by the physical signs) in connection with the vital capacity.

CONFIRMED OR ADVANCED PHTHISIS.							
	Circumference.	Height.	Weight.	Mobility.	Vital capacity.	Occupation.	Age.
1	33	5.10 $\frac{1}{2}$	140	2	150	Stonemason	30
2	33	5.6	126 $\frac{1}{2}$	2 $\frac{1}{2}$	140	Weaver	38
3	36	5.9 $\frac{1}{2}$	148	3 $\frac{1}{2}$	150	Blacksmith	22
4	33 $\frac{1}{2}$	5.7 $\frac{1}{2}$	127	3	190	Porter	22
5	33 $\frac{1}{2}$	5.6 $\frac{1}{2}$	138	8	180	Seaman	54
6	32	5.6 $\frac{1}{2}$	140	2	135	"	21
7	31 $\frac{1}{2}$	5.8	110	2	110	Domestic	22
8	34	5.6	114 $\frac{1}{2}$	2 $\frac{1}{2}$	110	Hod-carrier	33
9	31 $\frac{1}{2}$	5.7	113 $\frac{1}{2}$	3	140	Harness-maker	52
10	31	5.4	101	1	80	Seaman	54
11	31	5.3	113	2	50	"	38
12	33	5.8	132	2 $\frac{1}{2}$	110	Stonecutter	22
13	35	5.7 $\frac{1}{2}$	135	2 $\frac{1}{2}$	135	Shoemaker	35
14	31	5.4 $\frac{1}{2}$	113	2	90	Printer	18
15	30 $\frac{1}{2}$	5.4	114	2 $\frac{1}{2}$	80	Labourer	18
16	26	4.6	61 $\frac{1}{2}$	1 $\frac{1}{2}$	40	Domestic	14
17	34	5.5 $\frac{1}{2}$	128 $\frac{1}{2}$	2	130	Seaman	45
18	32	5.7	148	2	80	Labourer	25
19	31	5.6	106	2	120	Silversmith	40
20	32	5.7	139	2	80	Labourer	25
21	31	5.4 $\frac{1}{2}$	96	2 $\frac{1}{2}$	100	Harness-maker	41
22	31 $\frac{1}{2}$	5.8 $\frac{1}{2}$	116	3	100	Seaman	41
23	34	5.6	113	2 $\frac{1}{2}$	80	Hod-carrier	33
Mean	32	5.6	120	2 $\frac{1}{2}$	112		32
INCIPIENT PHTHISIS.							
24	34	5.7	146	3 $\frac{1}{2}$	220	Boatman	21
25	36	5.8	144	2	160	Farmer	26
26	36	5.7 $\frac{1}{2}$	150	4	150	Carter	48
27	31 $\frac{1}{2}$	5.10 $\frac{1}{2}$	128	3	140	Plumber	18
Mean	34	5.8	142	3	167		28

1. Had cough for five months, with occasional attacks of hæmoptysis; at time of admission, he was pale, thin, and feeble, and suffered with hectic fever. Percussion flat under left clavicle, with cavernous respiration, gurgling, and pectoriloquism; right lung apparently healthy.

2. Never had hæmoptysis, but has had cough for eighteen months with puriform expectoration, emaciation, and slight hectic fever. Percussion dull under right clavicle, with bronchial respiration and some vocal resonance; prolonged expiration under left clavicle, with crackling.

3. Several of his family have died of consumption, and he has had two attacks of hæmoptysis, followed by cough, puriform expectoration, and hectic fever. Feebleness of respiration with slight mucous râle at summit of left

lung, both behind and in front, but without dulness of percussion or bronchial respiration.

4. Cough for six months preceded by hæmoptysis, but was neither emaciated nor feeble. Expectoration puriform, but without marked hectic. Feebleness of respiration, with dulness on percussion and crackling at summit of left lung; jerking inspiration under right clavicle.

5. This patient was pale and emaciated, but had no hectic fever at time of admission; he had dry cough for two years, during which time he had one or two attacks of hæmoptysis. At summit of right lung, both in front and behind, the respiration was bronchial, whilst under the left clavicle it was feeble, and the percussion dull.

6. His mother had died in a rapid consumption; he had been troubled with cough for about four months, but never had hæmoptysis; at time of admission, he was pale, though not much emaciated, and had hectic fever every evening. Dulness on percussion with *bruit de pot fêlé* under left clavicle, as also gurgling and pectoriloquism. Jerking inspiration and prolonged expiration under right clavicle. Expectoration nummular, 3iv per diem.

7. She had suffered with spasmodic cough for about one year; was pale and feeble, and had copious purulent expectoration with hectic fever. Catamenia ceased for the last six months. Want of mobility under left clavicle, with flat percussion, *bruit de pot fêlé*, gurgling and cavernous respiration. No marked physical signs on the right side.

8. The disease commenced with the usual symptoms of bronchitis; but these were soon succeeded by hæmoptysis, hectic fever, and more or less prostration. When tested by the spirometer, there was dulness on percussion with feebleness of respiration and crackling under the left clavicle, whilst throughout the same side there was considerable mucous râle.

9. States that he has had cough for six months, followed by a severe attack of hæmoptysis; he also had profuse night-sweats and purulent expectoration. Feeble respiration with crackling under right clavicle, as also above spine of scapula of same side, with dulness on percussion and blowing respiration at summit of right lung.

10. This man was admitted with pleurisy of right side, attended with the usual signs of extensive effusion; hectic fever soon set in, and was followed by puriform expectoration, great emaciation and prostration; he also had chronic laryngitis. When tested by the spirometer, he presented the following signs: right side of thorax contracted and perfectly flat on percussion, with feebleness of respiration and slight vocal resonance, particularly about the root of the lung. Under the clavicle of same side, the percussion was dull, and the respiration feeble and more or less obscured by mucous râle. Chronic pleurisy with probable tubercular deposit.

11. States that he has had cough for fully nine years, and that several of his family had died of consumption. When he entered the hospital, his feet and legs were much swollen; he also had hectic fever, and was considerably

emaciated. Amphoric respiration under right clavicle, with *bruit de pot fêlé*, and dulness extending down to nipple. Under the use of cod-liver oil, he gained twelve pounds of flesh in the course of forty days, but the vital capacity and physical signs remained much the same as at first report.

12. Eighteen months previous to admission, he had an attack of pneumonia, since when the cough has continued, with hectic fever, purulent expectoration, and an occasional hæmoptysis. Crackling under both clavicles, with prolonged expiratory murmur, and some dulness on percussion. Strength moderate.

13. Suffered with chronic laryngitis for the last four months; several years ago he had a hemorrhage from the lungs, amounting to about one pint; since when he has had hectic fever and occasional night-sweats. At time of admission, he was thin but not emaciated, nor was his strength much impaired. Short jerking respiration under left clavicle, with dulness on percussion above spine of scapula of same side. Right lung apparently healthy. Sputa about 3iij.

14. This patient has suffered with cough and anasarca for four months previous to admission, and had lost flesh and strength. Expectoration puriform, and he also had occasional hectic paroxysms. One of his family had died of phthisis. Crackling under left clavicle with prolonged expiration; dulness and depression of left infra-clavicular region.

15. He was somewhat emaciated and feeble, and had night-sweats, with cough for four months before admission. Dulness at summit of left lung, with feeble respiration and crackling, and prolonged expiration under right clavicle. Mucous râle throughout left lung behind. Sputa 3iv. Under the use of cod-liver oil, he improved in flesh and strength, and was again tested by the spirometer about one month after the result in the above table had been obtained; he could now blow ninety, showing a gain of ten cubic inches.

16. She had slight hæmoptysis about four months before admission, and this was followed by cough and diarrhoea; she was pale and thin, but not very feeble. There was great fulness of the epigastric region, evidently depending upon an enlargement of the liver. Flatness and crackling at summit of left lung; right lung apparently healthy.

17. This patient had syphilis about three years ago, since when he had complained of sore throat; for the last four months, cough, hectic fever, and emaciation have supervened. Copious puriform expectoration. Lower two-thirds of right thorax flat and bulging, with feeble murmur over same extent; percussion dull under left clavicle, with *bruit de pot fêlé*, gurgling, and cavernous respiration. By the end of one month, the effusion into the right pleura had entirely disappeared, and, under the use of cod-liver oil, he had also gained flesh and strength; the physical signs, however, showed that the disease of the left lung had increased, and, when again tested by the spirometer, it was found that his vital capacity had diminished ten cubic inches. About this time he was seized with acute dysentery, which soon proved fatal. An examination

post mortem revealed extensive pleuritic adhesions of right side, and a large vomica at summit of left lung, in connection with numerous tubercles of both sides.

18. Cough for six months, but without hereditary predisposition to phthisis, and never had hæmoptysis; he attributed his sickness to an inflammation of the lung contracted several weeks before admission. Dulness on percussion, with bronchial respiration and bronchophony under right clavicle, with more or less subcrepitant râle and dulness throughout same lung; sputa slightly rusty; supplementary respiration on left side. After one month's residence in the hospital, his sputa became puriform, and under the right clavicle could now be detected amphoric respiration, pectoriloquism, *bruit de pot fêlé*, and metallic tinkling; the spirometer, however, gave the same result as stated in the table. Chronic pneumonia probably ending in tubercular deposit and ulceration.

19. Stated that he had cough for four years, but that it had become particularly troublesome for three months previous to his admission, during which time he had lost 20 pounds in weight. Hectic fever, huskiness of voice, and purulent expectoration. His mother had died of consumption. Cavernous respiration and gurgling, with flat percussion and want of mobility under the left clavicle. Bronchial respiration and jerking inspiration at summit of right lung.

20. Cough of three months' duration, with copious puriform expectoration and hectic fever. He ascribes his disease to exposure. Dull percussion and cavernous respiration, with gurgling and great vocal resonance under right clavicle, as also at upper part of same lung behind; left lung comparatively healthy, but the respiration was puerile on this side.

21. Stated that he had more or less dry cough for four or five years, but that he never had hæmoptysis. Four months before admission, he commenced to emaciate, and during that time he had lost fifty pounds in weight. Upon slight exercise, he became oppressed, and had some œdema of feet. Well-marked signs of large vomica below right clavicle, such as metallic tinkling, amphoric respiration, and tympanitic percussion; dulness and prolonged expiration under the left. Purulent expectoration about 3viiij per diem.

22. Never had hæmoptysis, but has been troubled with cough for about eleven months; and, at time of admission, was emaciated and feeble; sputa fetid and nummular. He had lost a sister of consumption. Want of motion under right clavicle, with flat percussion, cavernous respiration, and gurgling. The same signs could even be detected behind at summit of lung. Under the left clavicle the respiration was rude, but without dulness on percussion.

23. Cough for seven months, which could be traced to an attack of pleurisy. None of his family had died of consumption, nor had he ever had hæmoptysis. He was emaciated and feeble; expectoration purulent. Crackling and sonorous râle, with absence of respiratory murmur under left clavicle; mucous râles

throughout same side; right lung comparatively healthy, but deep inspiration developed slight crackling under the clavicle.

24. This man entered the hospital with a slight laryngitis, for several months previous to which time he had been somewhat troubled with cough; his strength and general appearance were, however, but little impaired. His mother had died of phthisis. Slight dulness, with jerking inspiration and prolonged expiratory murmur, were the only physical signs that could be detected. Along the aorta and subclavians there was a distinct musical bellows sound, most probably depending upon anæmia.

25. He entered the hospital with anasarca, unconnected; however, with any appreciable disease of heart, liver, or kidneys; he, moreover, had cough, but without decided hectic. Slight dulness under right clavicle, with feeble respiration, and some crepitant râle above spine of scapula. Left lung apparently healthy.

26. Had cough for seven months, without hectic fever or purulent expectoration; nor was his general health materially impaired, though he was evidently somewhat anæmic. Slight crackling under left clavicle, with prolonged expiration, and obscure dulness of percussion. No physical signs on right side.

27. Pale and somewhat emaciated; with cough for the last two or three months. His mother had died of phthisis; and, upon several occasions, he has had hæmoptysis. At times he had night-sweats, and his expectoration, though but small in quantity, was puriform. Slight dulness of percussion, with feeble respiration and mucous râle under left clavicle; sonorous râles throughout right lung.

The mean vital capacity of twenty-two cases of phthisis, in the early stage, was found by Dr. Hutchinson to be about 159; whereas in nine cases, in the advanced stage, it was but 83 cubic inches. By the above table, it will be perceived that the result was somewhat different; thus, in the advanced stage, the vital capacity was 112, or about one-half the average healthy standard, whilst in the incipient form it was 167; showing a loss of about 85, the mean in healthy persons being considered 225. This apparent discrepancy may no doubt in a great measure depend upon some important difference in the extent of pulmonary disease in the cases tested by the spirometer, and merely referred to by Dr. Hutchinson, under the general heads of *early* and *advanced* stage, and unaccompanied by any notes explanatory of the exact condition of the lungs in each case. The general result, however, in both series, shows that the vital capacity is very greatly impaired in the advanced state of consumption; more so, perhaps, than in most other affections of the chest. Thus, in pleurisy (including both effusion and adhesions) the loss was 93 cubic inches, in bronchitis but 19, and in extensive cardiac disease 95; whereas, in advanced phthisis, as shown by my observations, the loss was 112, or about one-half, and, according to the above-named author, even as great as 137. The only case of well-marked emphysema that came under my notice, at the time of making the present report, had a vital capacity of 95; but in this instance

the health was unimpaired, and the patient weighed 100 pounds, and was only five feet high ; so that, according to the rules before mentioned, there was no very great deficiency. In regard to incipient phthisis, or the early stage of this disease, it will be perceived that the mean capacity was 167, or 58 below the healthy average. Dr. Hutchinson, however, in similar cases, found a deficiency of 67 ; and, taking it for granted that this result is perhaps the most correct (since it is based upon a greater number of observations), it is still evident that other causes than tubercular deposit might produce a like result. We have seen that by mere debility the vital capacity may be lowered about 50 cubic inches ; whatever tends to prevent the free descent of the diaphragm, such as a full stomach, enlargement of the liver and spleen, or other abdominal affections, would also necessarily tend to increase this deficiency. Allusion has already been made to the influence exerted by occupation, and various thoracic affections in this respect.

By examining the last table, in connection with the appended notes, it will generally be found, as might have been anticipated, that the lowest vital capacity corresponds with the greatest amount of pulmonary disease. Thus, in Nos. 10, 15, 18, 20, and 23, it was but 80. In the first of these cases, however, much of the deficiency depended upon chronic pleurisy ; whilst in the second and last the extensive bronchial complication had much to do with the result. So, on the other hand, the greatest capacity generally occurred where the disease was least extensive ; this is true in regard to Nos. 1, 2, 3, 4, and 5, in which the vital capacity ranged from 140 to 190. In the first case, it will be observed that there existed the unequivocal signs of a vomica ; it should, however, be stated, that in this instance the disease appeared confined to the upper part of left lung. In No. 24, the first reported under the head of incipient phthisis, it will also be perceived that whilst the vital capacity was but little, if at all, impaired, the physical signs also revealed no considerable amount of disease.

Although the number of cases may be too limited to enable us to arrive at any positive conclusions as to the utility of the spirometer for the detection of pulmonary tubercles, it is still evident, from the above data, that it may occasionally afford material aid in forming a correct diagnosis. Thus, when the vital capacity is relatively large, it is more than probable that no considerable disease of the lungs can exist. So, too, when it is decidedly below par, we may infer that there are tubercles, *provided* the deficiency cannot be accounted for by debility and other conditions or diseases calculated to impair the respiratory movements. And this conclusion may even be received as highly probable, notwithstanding the absence of the usual physical signs ; since, as before stated, there are certainly occasional cases in which disseminated tubercles are not positively revealed, either by auscultation or percussion. The instrument, it is true, is both simple and of easy application, but much judgment and discrimination are requisite for the full interpretation of the results. Nor is it always an easy matter to appreciate fully or apportion the

exact influence of the various concomitant circumstances which so much modify the vital capacity; and it is for this reason that we are more liable to be misled by the spirometer than by the stethoscope. How far the rules laid down by Dr. Hutchinson may tend to obviate this difficulty, it remains for further observation to decide.

In drawing up the above report, I was much assisted by the accurate notes furnished by Dr. A. Hewson, Resident Physician; and it at the same time affords me much pleasure to acknowledge his valuable aid in testing the various cases by the spirometer and scale-balance.

ART. II.—*Notes from my Case-Book.* By FLEETWOOD CHURCHILL, M. D., M. R. I. A., Fellow of the King and Queen's College of Physicians, Ireland.

Intestinal Irritation in Childbed.—A kind of feverish attack, occurring in childbed, was epidemic in Dublin in 1851. In the course of six months, eight or ten cases came under my own observation. It was something like "weid," but with a considerable difference; yet it differed still more from any variety of puerperal fever. I cannot even say that it is peculiar to lying-in women, for it does not appear to have any direct connection with, or relation to, the uterine system, but it is apparently a short attack of fever, with gastro-intestinal irritation, occurring at that peculiar time.

Perhaps a sketch of two or three of the cases may render the subject more intelligible.

CASE I.—Mrs. — was confined of her tenth child in July, 1851. The labour was natural, the lochia and milk secreted amply, and she progressed favourably until the eleventh day. On the morning of that day, on which she was to leave her bed for the first time, before attempting to rise or dress, and without the slightest apparent cause, she was attacked with a rigor followed by heat and sweating. The pulse became quick and remained at about 100. The tongue became furred and white; the bowels flatulent and constipated. The milk, which had been abundant, almost entirely disappeared. The uterus was neither enlarged nor painful, nor was there any tenderness on pressure. The lochia continued natural in character though diminished in quantity. A day or two afterwards, the bowels, which had been freed by medicine, became too much relaxed, accompanied by a most distressing amount of flatulence and frequent griping pain. The pulse very slowly diminished in frequency, and the milk gradually returned. Throughout, the uterus and its secretion were apparently unaffected. On the morning of the eighteenth day the patient appeared much better, nearly convalescent; but, in the course of the day, she had another rigor, followed by fever, which subsided, after twenty-four hours, like an attack of weid. From this time, her convalescence was uninterrupted, though slow, and the milk was ultimately restored to its usual abundance.

CASE II.—Mrs. M. was confined of her second child, January 14, 1852, after a favourable labour. The placenta was expelled in a few minutes, and everything went on well until the afternoon of the 16th, when a rigor occurred soon after taking some castor-oil. Soon afterwards, most violent pain in the bowels came on and continued, but increasing in paroxysms. There was considerable tenderness on pressure, but not over the uterus especially. To the rigor, of course, succeeded fever. The skin became hot; the pulse rose to 130, with little or no thirst, but with a total loss of appetite. There was neither nausea nor vomiting, and the bowels were freely moved by the oil. Neither the milk nor the lochia were arrested, except for a few hours. Forty drops of laudanum were given, and thirty more after an hour's interval. A linseed-meal poultice was applied over the entire abdomen. These measures were successful, to a great extent, in the relief of pain, and she obtained some sleep.

January 17. I found that the patient had suffered a good deal of pain occasionally, but the general tenderness had greatly subsided. There was a spot, however, in the left iliac region which was very painful on pressure. The uterine tumour was free from tenderness. The lochia was natural in quantity and appearance, but had a heavy smell. The pulse was 120; the skin hot but moist; some thirst; bowels moved twice. Twelve leeches were applied to the tender spot in the iliac region, and the poultices continued. Vaginal injections of warm milk and water twice a day. Twenty drops of laudanum were given immediately, and a pill of calomel, gr. i, pulv. ipecac. comp. gr. iii, pulv. Jacob. gr. ii, was ordered to be taken thrice a day.

18th. Much relieved after the leeching. Pulse 110. Tongue white but not loaded. Very little pain or tenderness except in the left iliac region. Has slept better. Milk abundant. Lochia natural and free from smell. Is much troubled with flatulence. The pills and poultices were continued. Towards evening, notwithstanding the opium she had taken, she had an attack of diarrhoea accompanied with most distressing tenesmus, and burning pain in the rectum, which was not relieved until she had had two enemata with thirty drops of laudanum in each.

19th. Some uneasiness in the rectum, but no purging. The iliac tenderness has entirely disappeared. The milk and lochia natural. Pulse 100 in the morning, but it sank to 84 in the evening.

From this time, my patient gained strength, and was no more troubled with pain. The bowels acted naturally, and the appetite was increasing, when, on the seventh day from the first attack, she had a rigor of long duration, followed by heat and sweating, and lasting twenty-four hours, just as in the former case. After this, she recovered very rapidly, and has been well ever since.

CASE III.—Mrs. M. was confined about the same time as the last case, under the care of Mr. Morgan. Her labour, which was natural, was followed by smart hemorrhage. About the third day, she was seized with violent pain in the abdomen, increasing in paroxysm to an intense degree. There was no rigor, but the pulse rose to 120, and the skin became hot, but there was no thirst. The breasts were full and the lochia natural. Although the abdomen generally was tender on pressure, there was no peculiar tenderness over the uterus. A full dose of laudanum relieved the pain to a certain extent, and the bowels were freed by medicine. We then applied the mercurial ointment, on lint, over the abdomen, and a poultice over it, and gave small doses of calomel, Dover's powder, and James's powder, three times a day.

The next day she was much better. Pulse 110. Tongue coated. The skin cooler. Some pain and flatulence, with uneasiness on pressure. Milk and lochia natural. The day after, she was attacked with violent diarrhoea and severe pain in the bowels, accompanied with great exhaustion, so that we were obliged to give wine, and had some difficulty in controlling the bowels by means of opiates, astringents, anodyne enemata, &c.

After we had quieted the bowels by these means, and relieved the pain, the pulse continued for some days above the natural standard. In other respects, the convalescence proceeded quite satisfactorily.

Although the foregoing brief cases scarcely give an adequate idea of the attack being so alarming as it really was, yet those engaged in midwifery practice will feel that, coming on so soon after delivery, and commencing with such formidable symptoms, I might be excused for fearing that the issue would be more serious than it proved. The commencement of the attack, in many cases, closely resembled that of puerperal fever, and it was not until after twenty-four hours that I could feel even that we had escaped that pestilence of childbed. Instead of detailing more of the eight or ten cases I witnessed, I will rather occupy the time of the Society in noticing some of the peculiarities of the epidemic.

1. The attack, in all cases but one, occurred within a week after delivery; in one case it came on the second day; in others on the third, fourth, or fifth day. In the exceptional case, it occurred on the eleventh day; and it is worth notice that, for other reasons, this lady had not left her bed up to that time.

In no case could I trace the attack to any special cause, exposure, imprudence, or errors of diet, but there was evidence in some of the cases that the bowels had not been carefully attended to during pregnancy. And perhaps I may be allowed to make a remark for the benefit of my juniors. It may, and not unfrequently does, happen that the bowels may be moved daily during pregnancy, and yet that an accumulation of fecal matter in the large intestines may accumulate to a considerable extent. I remember a case in which I traced the colon across the abdomen by its enormous fecal distension, although the lady had complained of diarrhoea during pregnancy. In such cases, a kind of artificial channel is formed through or on one side of the fecal mass. In all cases, therefore, it is necessary that we should be sure that the bowels are amply freed, and not merely moved.

2. In three cases only did the attack commence with a rigor, and in these it was not very severe but sufficiently well marked. In two cases only was the rigor repeated, and in both at the interval of a week; the second attack lasting twenty-four hours, and resembling weid very exactly.

3. The most striking symptoms in all the cases were the pain and diarrhoea. The former came on rapidly, increasing in paroxysms, and continued until relieved by medicine. It was always general over the whole abdomen whilst severe, but, as it declined, it was felt more in one part than another; I think, most frequently in the left iliac region. After the first severe attack

was relieved, all the patients complained of frequent flatulent pains, with great discharges of flatus. Along with, and in proportion to the amount of pain was the degree of tenderness; but it was remarked that, after the first impression of pain, the pressure, if equal and firm, was rather a relief; also, that the uterine region was less tender than any other part of the abdomen.

It is worth noting, that in no single case did nausea or vomiting occur, but that in all there was diarrhoea, even in those in which the bowels were confined at the commencement of the attack, or in which large doses of opium had been given for the relief of the pain. The amount varied; in some the discharges were few, but large and unhealthy; in others they were very numerous, and followed by great exhaustion.

4. The pulse was invariably quick at first, generally 120, sometimes 140, and gradually subsiding as the distress diminished. In a few cases they continued quick for many days, and excited much uneasiness. Its frequency was accompanied by heat of surface at first, which, however, soon diminished. In most cases there was a good deal of perspiration, and in one or two it was excessive. The absence of thirst was rather remarkable in all cases, except just after the exhibition of opium. The tongue was coated with white fur, but neither loaded nor dry.

5. In every case but one, the secretion of milk was unaffected, the breasts remaining or becoming pale and hard. In the exceptional case, the milk, which had been abundant, was completely suppressed for a time, but ultimately restored.

6. The lochiæ were generally diminished or suppressed for a few hours at first, but they speedily returned, and occasionally had a heavy smell for a day or two, after which they became natural and healthy.

7. I have already mentioned that, in two of the cases, there occurred a repetition of the rigor followed by heat and sweating like an attack of *weid*.

8. As a general rule, the attack lasted about a week; few were convalescent earlier, and one or two were protracted a few days longer.

9. I need not say that the diagnosis was a matter of extreme anxiety to me, beginning, as the attack did, with so much resemblance to puerperal fever, and presenting such formidable symptoms. However, one thing was clear, that, whatever else I might have to treat, I had undoubtedly to deal with a severe attack of intestinal irritation, as was shown by the pain, its fluctuations in seat, and its paroxysmal character, and which was confirmed by the occurrence of diarrhoea. So far was clear; but then arose the question as to whether there might not exist enteritis or peritonitis, and some support to this view was afforded by the rigor, the quick pulse, and the tenderness; but then the pain was shifting and paroxysmal, which is not generally the case in either, and the tenderness was superficial, and not increased by prolonged pressure. Add to this, that the decided improvement in the course of twenty-four hours negatived such a supposition.

There then only remained the question of how far the uterine system was

involved; and, as I found no particular tenderness over the uterus, and no enlargement of that organ, that the lochia, if modified for a few hours, shortly resumed their natural character, and, lastly, that the secretion of milk was abundant and unchecked, I came to the conclusion that the uterine system was unaffected; that no inflammation existed in the peritoneal serous membrane or in the intestines, but that the attack was one of severe intestinal irritation with accompanying fever from some unexplained cause. In this the stomach did not participate, as neither nausea nor vomiting occurred, and merely that loss of appetite which was necessarily the result of so much disturbance.

10. The treatment was simple enough, and very successful. The first object was to relieve the pain by large, and if necessary repeated doses of opium by the mouth, or by enemata of laudanum and starch, and externally by poultices of linseed-meal alone, or with flour of mustard. When relief was obtained, if the bowels had not been sufficiently moved, I gave a dose of castor-oil, but, had I known that diarrhoea was to follow as it did, I need not have done this. I then, as a safeguard, gave small doses of calomel or gray powder, with Dover's and James's powder, three or four times a day, and, in two or three cases, applied the ung. hydrarg. to the abdomen underneath the poultices. When the attack was more familiar to me, I omitted the mercury, and in all cases left it off when I found the uterus unscathed, but I continued the James's and Dover's powder, and the poultices, until all pain and uneasiness had disappeared.

The flatulence was relieved effectually by camphor mixture, with aromatic spirit of ammonia, compound spirit of ether, and tincture of orange-peel. I kept the patients on low diet at first, of course, and I found it necessary to be very cautious in increasing the nourishment for some time, as a meal was very apt to be followed by pain and flatulence.

ART. III.—*Facts and Observations on the Origin of Yellow Fever from Local Sources of Infection, as illustrated by Occurrences on board of Ships.* By R. LA ROCHE, M. D.

THE annals of the yellow fever in this country, in Europe, and in tropical climates, abound in facts tending to establish beyond the possibility of doubt the local origin of the disease from sources of malarial infection, and its complete independence of a contagious principle or virus emanating from the sick, and transmissible from one individual or place to another, through means of a personal intercourse with these or the indirect agency of fomites. Of such facts none appear better calculated to illustrate the reality of that origin than those derived from the records of the rise and spread of the fever on board of

ships; occurring, as they often have done, under circumstances which forbid the supposition of a foreign or contagious source of contamination, and point to the vessel itself as the focus of infection. That by some writers, more or less entitled to our regard, the spontaneous development of the disease on shipboard from causes of the kind has been denied or strongly doubted;—that attempts have not unfrequently been made to impugn and explain away the many facts adduced in its support, is doubtless true. Faithful to his belief in the doctrine of contagion and importation, Bally, whose intelligence and learning it would be unsafe to question, but whose soundness of judgment no one judging from the course he has pursued in the controversy will feel disposed to commend, boldly affirms that the yellow fever has never originated, in the way mentioned, in ships. According to him, the facts so exultingly cited as demonstrative of spontaneous development are all calculated to excite suspicion. Some of the accounts on record, he thinks, have been transmitted by individuals whose power and accuracy of observation are entitled to little or no confidence; in other instances the vessels had touched at some American ports, and there imbibed the germs of the fever; in others, again, the vessels contained infected merchandise, from which those on board derived the contagion; in another set of cases, the disease observed was nothing more than ordinary ship fever, and not the true typhus icterodes, with which it was improperly confounded; while, in some instances, the effect must be attributed to a revival of the cause in vessels in which the disease had some time before prevailed extensively and been temporarily arrested.¹ In some one of these ways, according to Bally, every case described may be easily disposed of without having recourse to the idea of the fever being the effect of a poison evolved within the ship itself.

Not less certain is it that a still higher authority among contagionists of the purest water, Kéraudren, whose official position as physician-in-chief of the French navy necessarily afforded him ample means of information, may be appealed to, by the opponents of that mode of development, as a warm and intelligent supporter of their views.² Nay, among non-contagionists themselves, there are not wanting those who, while admitting the local origin of the yellow fever on shipboard, discard the idea of referring the disease there, or, indeed, anywhere else, to the agency of sources of malarious infection, and have taken special pains to show that it is due to changes of habits, exposure to the sun, sudden vicissitudes of temperature, cold, heat, fatigue, fogs, moral causes, and a variety of other morbid influences of like import.³

But however willing we may be to respect the authority of these writers and of others entertaining kindred views;—however true it may be that some

¹ *Du Typhus d'Amérique ou Fièvre jaune*, pp. 357–8.

² *De la Fièvre jaune, observée aux Antilles et sur les Vaisseaux du Roi*. 8vo. Paris, 1823.

³ *The Influence of Climate and other Agents on the Human Constitution, &c.* By Robert Armstrong, M.D. pp. 57, 61, 76, &c.

of the statements on record, and pointed out as illustrative of the mode of origin in question cannot be fully relied upon, that there is reason to believe the disease in some instances to have not been the true yellow fever, and that in others, it was the offspring of extrinsic influences, and not of a cause evolved on board of the infected vessels, still, a careful perusal of the numerous facts we possess on the subject before us, so far from justifying the propriety of discarding as spurious and erroneous all that has been said in support of the malarial origin of the fever on shipboard, will fully sustain the opinion of those who ascribe in very many instances the appearance and spread of the disease in such localities to the operation of morbid effluvia generated in the timber of the vessels themselves or the materials these may contain. Let it not be supposed that the correctness of these conclusions is upheld by none but anti-contagionists. So far from this being the case, they include among their advocates writers who have taken an active part in support of the contrary doctrine, and who, strikingly as the admission conflicts with the views they entertain respecting the usual source of the disease, and impossible as they may find it to reconcile the facts they adduce with the theory they profess on the latter subject, do not hesitate to express their belief in the occasional spontaneous development of the yellow-fever poison on board of ships. Sir Gilbert Blane himself, than whom we scarcely know a more zealous and uncompromising contagionist and importationist, and who, consequently, was too deeply interested in the matter to make an admission in opposition to his recorded views he did not know to be well founded, at the same time that he was too well acquainted with the disease to commit a gross error of diagnosis, remarks that experience has proved that "one of the most prolific sources of foul air and bad smell in ships has been the putrescent matters absorbed and retained by gravel, sand, and other earthy substances heretofore used for ballast." He alludes to those cavities under the floor of the holds, which used to be receptacles of filth and of all manner of vermin, dead and alive, proving perpetual reservoirs and sources of foul air and of offensive and noxious exhalations.¹ In another essay on yellow fever, he more pointedly states that the West Indian fevers "sometimes are found to arise from the foul vapour of ships replete with filth from long neglect of cleanliness;"² and in his excellent work on the *Diseases of Seamen*, we are told:—

"With regard to the effect of putrid exhalations, I need only mention that at the time of the battle of the 12th of April, 1782, there was not a sickly ship in our fleet; but many of the officers and men, who were sent to take care of the French prizes, were seized with the yellow fever; and it was observed that when at any time the holds of these ships, which were full of putrid matters, were stirred, there was an evident increase of those fevers soon after." P. 609.

¹ On the Health of the Navy, *Med.-Chir. Trans.* vol. vi. pp. 507, 510. Select Dissertations, vol. i. pp. 86, 88.

² Select Dissertations, vol. ii. p. 119.

A distinguished countryman of ours, the late Dr. Currie, of this city, who never could discover the most remote reason to admit that the yellow fever had ever originated in this country, thought that "crowded transports or ships of war, generally, if not always, constituted the original and proper sources of the matter of contagion or the poison of the disease."—(*Diseases of America*, p. 60.) Other admissions, equally conclusive, by contagionists of high authority will be adduced as we proceed, and would alone prove sufficient to counterbalance the doubts and denials to which attention has been called. But even were we unable to support the opinion of the origin of the yellow fever on shipboard from local sources of infection and independently of external influences, by appealing to the testimony of Blane, and other writers who entertain views similar to his own respecting the etiology and mode of propagation of the disease, we should be led to its adoption by a survey of various occurrences on board of government and merchant vessels of this country, England, and France.

Regarding many of these as establishing the reality of that origin beyond the reach of cavil and disputation—considering, besides, that they lend a strong support to the doctrine which ascribes autumnal and other febrile diseases to the agency of specific poisons floating in the atmosphere, and lead to the inference that, on land, the yellow fever, when it breaks out, must likewise be due to effluvia issuing from kindred sources of contamination, and not to the importation of a contagious virus from some distant infected place—I have thought that a condensed account of them, collected from various publications—many of which are now little known or difficult of access—might serve a useful purpose, as affording important materials for the settlement of the long-mooted question of the mode of origin of that formidable disease.

In the performance of this task, attention might perhaps be called to the history of the disease as it prevailed on board the *Princess Caroline*, at Curaçao, in 1763, as so graphically described by Rouppe;¹ on board of the *Majestic*, at Port Royal, Martinique, in 1795;² of the *Ganges*;³ of the *Peacock* and *Grampus*;⁴ the *Sea Island*, at Middletown, in 1820;⁵ the *Polly*, at Chatham, Ct., in 1796;⁶ the *Ten Brothers*, at Boston, in 1819;⁷ the *Favourite* and *Ocean*, at Perth Amboy, in 1811;⁸ the various vessels from New Orleans, at

¹ *Diseases of Seamen*, p. 416.

² Gillespie, p. 31.

³ *Cartlet, Med. Repos.* vol. iv. p. 243.

⁴ *Barrington, Am. Journ. of Med. Sci.* vol. xii. p. 308.

⁵ *Beck's Rept. in Hosack on Med. Pol. Essays*, vol. ii. p. 65; *Tully and Miner's Essays*, p. 319.

⁶ *Tully and Miner*, p. 356; see, also, *Letter to Dr. Hosack, N. Y. Med. Journ.* vol. i. p. 153; *Webster on Epidemics*, vol. ii. p. 344.

⁷ *New England Med. Journ.* vol. 8; *North Am. Rev.* vol. x. p. 397; *Watt, in Med. and Surg. Reg.* p. 226.

⁸ *Report of Drs. Hosack, Bayley, and Douglass, Med. and Phil. Reg.* vol. iii. p. 95; *Edinb. Med. and Surg. Journ.* vol. viii. p. 165.

Staten Island, in 1848;¹ the Bann, at Ascension, in 1823;² the Palinure, at Martinique;³ the Néréide;⁴ the Expéditive;⁵ the Gloriotte;⁶ the Eglantine;⁷ the Africaine;⁸ the Middleburg;⁹ the Chichester;¹⁰ the Herminie;¹¹ the Vestal;¹² the La Ruse and the Grayhound, at the Wallabout, in 1804;¹³ the Ann Maria, at the New York Quarantine, in 1821;¹⁴ the Alban, at Port Royal (Jamaica);¹⁵ the Snake, at St. Jago (Cuba);¹⁶ the Tartarus, Crocodile, Dee, Satellite, Hecla, Megæra;¹⁷ and others of which we have the records. But, although the disease, in those instances, very apparently originated on board, yet as in some it commenced while the ships lay at anchor near an unhealthy shore, or in sickly ports, and were hence within reach of external morbid influences; or, in others, a short time after they had left such places; and as, consequently, serious doubts may be entertained, as to the propriety of ascribing it positively to causes evolved on board, the cases in question may be laid aside as inconclusive. For a similar reason, it may, perhaps, be proper to omit adducing, as has been often done, the epidemic which occurred on board the U. S. ship Delaware, in 1799–1800, at Curaçoa, an account of which will be found in an early volume of the *New York Medical Repository*.¹⁸ In this account, Dr. Anderson, while stating that, during the prevalence of the fever, the crew suffered from a highly nauseous smell between decks—which was not the result of effluvia from the accumulation of the sick, as it remained long after they were removed—says nothing of the cause of the disease being in the ship, and seems, even, to attribute it to exhalations from the shore. And yet, from the following statement by the late Dr. Vaughan, of Wilmington (Del.), contained in a letter to Dr. E. Miller, of New York, it would appear that the disease, on that occasion, broke out under circum-

¹ Communication from the Committee appointed to inquire into the propriety of the removal of the Quarantine establishment, p. 14, &c.

² Burnett's Report, p. 3, &c.; Blane, Letter to Mr. Croker, N. Y. Journ. vol. iii. p. 173; Thompson, on Anat., &c., *ibid.* p. 168; Med.-Chir. Journ. and Rev. vol. iv. p. 916; *Ibid.* N. S. vol. ii. p. 3; Brit. and For. Med.-Chir. Rev. vol. i. p. 62.

³ Sir G. Blane, vol. ii. p. 141; Dict. des Sci. Méd. vol. xv.; Strobel, p. 19; Palloni, pp. 42, 43; Opinion de M. Lafort, pp. 15, 16; Moreau de Jonnes, p. 121; Chervin Rept. p. 8; Dickson, in Bancroft's Sequel, pp. 172, 173 (note).

⁴ Kéraudren, p. 37.

⁵ *Ibid.* p. 38.

⁶ *Ibid.* p. 40.

⁷ *Ibid.* p. 42.

⁸ *Ibid.* p. 42.

⁹ Lind on Hot Climates, p. 133.

¹⁰ Doughty on Yellow Fever, p. 16.

¹¹ Maher, Relation de deux épid. de Fièvre jaune.

¹² Wilson, Stat. Rept. of Health of British Squadron, p. 109.

¹³ N. Y. Med. Rept. vol. viii. pp. 97, 98; Smith on Epidemics, p. 80.

¹⁴ Hist. of the Proceedings of Board of Health of N. Y. in 1822, pp. 7, 8; Smith on Epidemics, p. 80; Letters on Yellow Fever of 1821, and Rept. of Jos. Bayley thereon, p. 6, &c.; Vaché, Letters on Yellow Fever, &c. p. 8.

¹⁵ Bryson, Stat. Report of the Health of the Navy (Brit.), p. 95.

¹⁶ *Ibid.* p. 96.

¹⁷ *Ibid.* pp. 101, 106, 121.

¹⁸ An Account of a Bilious Yellow Fever which prevailed in the United States ship Delaware, &c. By S. Anderson.—*Med. Repos.* vol. v. p. 280.

stances which render its origin from local sources of infection on board more than probable. Let the impartial reader judge. In speaking of the ship in question, Dr. V. remarks:—

“Dr. Anderson, of that ship, informed me that the disease unquestionably originated on board, in the harbour of Curaçoa, while the inhabitants of the island were perfectly healthy. As soon as the nature of the disease was known, they put to sea, in hopes of receiving advantage from a free circulation of air; but the sick-list increased daily, and they returned to the harbour of Curaçoa in a much worse condition than they left it. Forty sick were landed; and, though there was no restriction in intercourse with the inhabitants, there was not a single suspicion of contagious influence.”¹

But, whatever uncertainty there may be thought to exist respecting the ship Delaware, there can be none as regards the origin of the disease on board the U. S. frigate General Greene, in 1799. The history of that visitation has often been cited, and must be familiar to many American medical readers. The ship left Newport (R. I.) on the 3d of June, and reached the Havana on the 4th of July. The disease commenced during the passage, and extended rapidly. The crew thus affected had had, to use the language of Dr. Kollock, to whom we are indebted for an account of the occurrence,² no communication with any vessel at sea, nor had they touched at any place in their passage, or even had intercourse with the town, or vessels in the harbour, till after the breaking out of the disease. Other vessels in port were no more than usually sickly, and the inhabitants of the island were remarkably healthy. “The principle of disease,” continues that writer, “seemed to have been generated on board, and to have gradually acquired virulence and activity as they approached the place of their destination.” “Those who frequented the hold, and were stationed in the neighbourhood of the pumps, suffered more especially during the continuance of the disease, as they had been the first attacked by it.” It may be remarked that the ship being new, may be supposed to have been in a cleanly condition. But, having been caulked in winter, her seams opened as the warm weather advanced, and her ballast consisted partly of iron, and partly of earth, taken from a clay shore, intermixed with soft slate stone, shells, and marine vegetables. During the passage, the vessel experienced a violent storm, which was followed by very hot weather, and the extreme putrefaction of a quantity of codfish that was on board. From these causes combined, the air in the hold became soon so contaminated as to extinguish lights immediately. The disease was identified as yellow fever by Dr. Halliday, an experienced practitioner of the Havana, and author of a clever essay on the disease as it appeared there in 1794.³

¹ Med. Repos. vol. iv. 245.

² An Account of the Malignant Disease which appeared in the U. S. frigate General Greene.—*Med. Repos.* vol. iv. pp. 2, 3.

³ A Short Account of the Origin, Symptoms, and most approved Method of Treating the Putrid Bilious Yellow Fever, &c., which appeared in the city of the Havana, &c. Boston, 1796.

In the following year, 1800, the fever once more broke out in the ship, after a long cruise in warm climates, where, however, she had not been exposed to morbid effluvia from the shore or contaminated ships, and where the crew had remained all the time unusually healthy. The frigate reached the Chesapeake on the 11th of July. Thence, after a detention of three days, she sailed for Newport, where she arrived on the 21st. Some cases of bilious fever had occurred prior to her reaching the Chesapeake, but they were readily controlled by usual remedies. "Every customary method of preserving purity of air and the health of the seamen had been assiduously observed. The ship was freely ventilated, scoured, whitewashed, sprinkled with vinegar, and the nitrous fumigation" "was frequently excited between decks." Nevertheless, the yellow fever broke out soon after she had left the mouth of the bay, and continued to prevail after her arrival at Newport, when it assumed a more malignant and fatal character, and attacked some individuals from the town who worked on board, or bathed near her at the time her bilge-water was pumped out.¹

The next case I shall mention is that of the United States ship *Hornet*, which was visited by the yellow fever in September, 1828, while lying at Sacrificios, a small island about three miles from Vera Cruz. Dr. Barrington, of the Navy, to whom we are indebted for an account of this fever,² states that there "was no epidemic in the city of Vera Cruz, excepting the dengue; nor was the fever prevalent at any place where the ship had touched on her cruise." From this, we may conclude that the fever originated on board—an opinion rendered the more probable by the circumstance that the vessel was at the time in a condition well suited to the evolution of noxious effluvia.

"In the winter of 1827, the *Hornet* had undergone extensive repairs; she was 'salted,' and consequently very damp; the moisture collecting in drops on the beams, &c., when the atmosphere was charged with vapour. When she was 'broken out' at New York, after her return in 1828, great quantities of mud and other filth were taken from her hold; and in her timbers and lower works was discovered a considerable collection of chips and shavings in a putrid state, which had fallen there during repair. The bilge-water and smell from the hold of this ship were exceedingly unpleasant.

"During the two months previous to this time [the breaking out of the disease], the weather had been clear and oppressively warm, with very little rain—the thermometer averaging 87° at noon; at no time above 90, or under 79°. It was kept on the berth-deck, immediately under the main hatch, in as cool a situation as any between decks.

"When the *Hornet* arrived at the Navy Yard, Pensacola (in lat. 30° 17' N.), from Vera Cruz, we had," says Dr. Barrington, "but two new cases. After leaving Pensacola, on our way to New York, no one was attacked until we got into the latitude of the southern capes of Florida (about 24° 30'). While here the temperature varied from 78° to 82°, and we had an increase of seven new cases to our sick-list, two on the 5th, and five on the 7th Nov.,

¹ Account of the Yellow Fever which originated on board the U. S. frigate *General Greene*. By E. T. Waring.—*Med. Repos.* vol. iv. pp. 234.

² *American Journ. of Med. Sci.* vol. xii. pp. 807-8.

and one more, being the last on the 8th. From this time as we increased our northern latitude, and the thermometer gradually descended towards the freezing point, we had not another case, and those already attacked rapidly convalesced." P. 307.

Here again there could have been nothing like the introduction of a contagious germ. While at Sacrificios, the vessel was at too great a distance from Vera Cruz to have been contaminated by morbid effluvia, evolved in that city and wafted through the agency of the wind. But even had the ship been lying within infecting distance from that city, no yellow-fever epidemic existed there at the time. Nor could the disease have been derived from malarial poison originating at Sacrificios or on the neighbouring coast, as the fever that usually prevails there is of a character different from that which appeared on board. Independently of this, it may be remarked that the ship contained materials which, on land, have often been found associated with the development of the disease, and was in a condition such as to suggest the idea of the evolvment of deleterious effluvia; as well as placed under atmospheric influences calculated to favour or produce that result. It must be noted, also, that the disease disappeared on the vessel reaching a cold latitude—an occurrence unusual in regard to fevers not due to local causes.

Much to the same effect is the case of the United States ship *Levant*, the crew of which suffered severely from the yellow fever at Pensacola, in 1841. This case, I am aware, was adduced by the late Dr. Carpenter, of New Orleans, a warm and uncompromising advocate of the doctrine of contagion,¹ in proof of the introduction of the fever on that occasion into Pensacola from the West Indies. But no facts of a satisfactory kind have been brought forward to establish the reality of that introduction, while a variety of circumstances induce the belief that the fever originated on board the ship. Dr. Hulse, of the U. S. Navy, who, in a clever essay on the yellow fever,² adverts to this case in evidence of the local origin and non-contagious character of the disease, makes the following statement which goes far to establish the correctness of that opinion:—

"On board of the *Levant* sloop of war, we have numerous facts to prove that there existed a cause additional to that of the atmosphere, in the foul state of the hold of the ship. This ship was lying opposite to Pensacola, during the month of August, and on the last day of that month, four cases of yellow fever were sent from her to the hospital. In three or four days, she dropped down to the navy-yard, dismantled, and her crew were sent on shore at the yard—a portion of them still communicating with her; and on the last day of September, ninety-nine cases of yellow fever had been admitted into the hospital from her officers and crew. New cases continued to occur among the ship's company, now located at the navy-yard, until we received thirty-nine more, making in all one hundred and thirty-eight cases from this single

¹ Sketches from the History of Yellow Fever; showing its origin, and disproving its domestic origin, and demonstrating its transmissibility, p. 29.

² Maryland Med. and Surg. Journ. April, 1842, pp. 392-4.

ship! The disease did not disappear till the 5th Nov., after several severe frosts."

During the whole of this time, not more than one or two well-attested cases occurred among the men connected with the yard; and as they were within infecting distance of the ship, and all the other cases were traced to the latter, the conclusion is natural that the disorder was due to causes therein contained, and not to any external influence.

Much more interesting than the preceding, and more deserving of our serious consideration, is the case of the prevalence of the yellow fever on board of the frigate *Macedonia*, in the summer of 1822. This case gave rise to much controversy, and resulted in a Court of Inquiry,¹ from the record of which the following narrative is derived.

The *Macedonia*, under the command of Captain James Biddle, sailed from Boston, at the navy-yard, at which she had recently been fitted out for the West Indies, on the 2d day of April, and reached her destination with a healthy crew, about the close of the same month. While in the harbour of the Havana, where she lay from the 28th of April to the 4th of June, with the exception of one day, and which, like Cape Haytien and Port au Prince, where she subsequently touched, was remarkably healthy, malignant yellow fever broke out in her. The first case occurred on the 8th of May, and ended fatally on the 11th; another died on the 19th, after which the disease extended rapidly among the crew, and carried off several of the officers. On the 4th June, the ship sailed for the Island of St. Domingo, and on the passage the disease continued to prevail; though the number of new cases lessened, and the sick appeared better while at sea. But at Cape Haytien and Port au Prince, the sickness and mortality continually increased, and the ship became so infected that there was no reasonable ground for expectation that the crew could be relieved but by change of situation or climate. The captain, therefore, after returning to the Havana, and staying there a short time, sailed for the Chesapeake, on the 24th of July. P. 40.

The ship seems to have been, apparently at least, in an average or even clean state, except as regards her hold, the air in which, after she had arrived at the Havana, was found by the officer in charge to be very dense, close and disagreeable, as well as hot. The hold was not at first offensive to the smell or otherwise, except once, when, on removing four casks, situated under the fore hatch, a quantity of dirt was discovered. While at the Havana, no other of the ground tier of casks were removed, and no other dirt discovered at the bottom of the hold. The latter, at the time of the fitting out of the ship, which had lately arrived from the coast of Brazil, was in a very dirty condition, for a large quantity of mud was found in her; the casks were rotten, and the water pumped out was black and muddy. Much of this was removed, so that when the ship sailed she appears to have presented nothing highly objectionable. Nevertheless, Capt. Biddle, in his letter to the Secretary of the Navy, positively asserts that the great bulk of the ballast, although covered with mud and dirt, was neither moved nor properly cleansed, and the hold was stowed with this horrid and offensive matter remaining in it. "Offensive,

¹ Minutes of the Proceedings of the Court of Inquiry ordered by the Secretary of the Navy, on the application of Capt. J. Biddle, in October, 1822, Washington City, 1822.

indeed, it might not have been at Boston, in the winter season; but it is obvious that it would, and must become highly so, after it had time to ferment within the tropics." P. 43.

Water was let in the hold at the Havana, between the 28th of April and 7th of May. After this, Capt. Biddle, "having been informed by some English officers, who arrived there after the Macedonia, that there was a standing order in the English service that water should not be let into their vessels in the port of the Havana," (p. 4,) the practice was discontinued. Soon after this, the bilge-water was found to be very filthy and offensive, to such an extent, indeed, that when it was pumped out, in one instance, the captain "sent off from the ship as many of the men as could get into the ship's boats, and the rest were sent into the tops. There was a gelatinous substance of a very offensive character on the chain cable when hove in; and on taking out the starboard cable a part of it was found to be wet, in consequence of a leakage from one of the berth-deck scuppers. The casing of this being removed, about two buckets full of very offensive filth was found (pp. 6, 7). It may be remarked that by the time the vessel arrived at Norfolk, a change had taken place in her condition; for it is stated by the master (John Robinson), who then attended the breaking out the riding and ground tier, that there was not more dirt in the hold than usual. About twelve casks of lime had been thrown into the hold before that operation was performed; then a quantity of water was let in, and when this was pumped out it was not found dirty. Mr. Robinson was in the hold after all the casks had been taken out, and did not find then more dirt than might have naturally been expected. The hold was not offensive before broken out, and even appeared to be sweet. Two of the limber-boards were removed, and the timbers appeared to be clean (p. 24). Purser Thornton likewise states he witnessed no unusual filth, and that the hold was not offensive (p. 26).

Be this, however, as it may, the sickness and mortality on board, according to Capt. Biddle, was greatest among the persons employed in the hold, and among the carpenter's crew, who by working the pumps were most exposed to the offensive bilge-water discharged from the ship (p. 43); and by Dr. Chase, one of the surgeons, it is stated that the disease commenced near the pumps (p. 28). The boat crews were, on examination, found to have suffered less than the rest of the ship's company (p. 9). "It appears that the awning was constantly spread while in the Havana, and that the men were very little exposed to wet or to the sun, or to duty in boats, or to fatiguing duty on board, being excused from keeping watch at night," (p. 39.)

From these various circumstances the inference is natural that the disease, which carried off one hundred and one individuals out of a complement (including officers) of three hundred and seventy-six, arose from the operation of causes located in the vessel itself. There was, as we have seen, no yellow fever at the time in the city or port of the Havana, and the same fact has come to my knowledge through other channels. Other vessels, at no great distance from the frigate, did not suffer from the disease, and neither officers nor men could have communicated with individuals already affected. Hence, it was impossible for the fever to have arisen from the introduction on board of a contagious germ, or from morbid effluvia proceeding from the port, and blown from a distance. The disease there produced continued on board during the passage to St. Domingo, and therefore could not have depended on a

cause existing in the harbour or city of the Havana, for in that event it would have ceased soon after the vessel put to sea. It increased at Port au Prince, and as the fever was not prevailing there at the time, its aggravation was not the result of external influences having their source at that place. It is to be remarked that the disease continued to prevail during the passage back to the Havana, as well as during the stay there, and did not cease before the arrival of the vessel at Norfolk, and the landing of the crew. To this must be added that the ship's hold was the receptacle, while at the Havana, of materials which, in other localities, have, under similar atmospheric and thermometric conditions, given origin to morbid effluvia of a most pestiferous character; that the disease first attacked and prevailed most severely among those most exposed to the effluvia from the hold; that the boat's crew, who were less exposed to those effluvia or the contaminated atmosphere of the ship, were less affected by the fever than those who remained on board; and that the medical officers of the ship, Drs. Cadle and Chase, and Dr. Dayers, of the navy, whose opinion was asked by the court, and who was familiar with all the circumstances of the case, expressed the opinion that the fever originated from noxious effluvia generated in the ship's hold (pp. 4, 35, 50). Whether the effluvia proceeded from sources of infection previously existing in the vessel, and brought in it from Boston to the Havana (innocuous and unperceived there, but efficient within the tropics); whether they were furnished by the water improperly and imprudently let into the hold at the Havana, and which, as it would seem, was impure; or whether, as is more probable, the poison was created by the operation of that water on materials already collected—mud, dirt, the timber of the ship, or the wood of the casks, &c.—matters not to the question more particularly before us. All we need look for is, that the cause was located in the vessel itself, followed it wherever it went, and never ceased to exercise its baneful influence, till, in a more northern climate and cooler season, the latter was emptied and purified.

Other causes were suggested. 1st. Sudden transition from a cold to a hot climate. 2d. Tropical heats acting upon constitutions unacclimated. 3d. Predisposition to disease from debility, arising from previous disposition or disease—the crew having suffered much from catarrhal complaints during the passage. 4th. Dampness between decks. 5th. A want of suitable clothing, and neglect of personal cleanliness, as also a privation of those articles of diet which seamen are in the habit of purchasing of the purser. 6th. Sleeping on the decks, and exposure to the night air and dew, as also sleeping in a crowded state on the berth-deck. 7th. Fatigue, arising from the frequent exercise at the large guns in the harbour of the Havana. 8th. Despondency, arising from an impression that the causes of sickness were on board the vessel, and the apparent inefficacy of medicine. 9th. Too long sojourn in the port of the Havana; on account of the greater degree of heat the men were exposed to than they were accustomed to, or would have experienced at sea, as well as exposure, during that time, to the foul and deleterious air of the

port. 10th. Neglect during that time of hoving up the ship broadside to the wind, so as to enable the latter (which blew pretty regularly from morning till sunset) to penetrate, cool, and purify all parts of the vessel. To all who have some knowledge of yellow fever, and of the causes which usually give it origin, it need scarcely be stated that the above-enumerated circumstances may have predisposed to, but could not have produced the disease. The limitation of the latter to the frigate, and the general nature of some of those influences, as well as the fact that their operation extended to the crews of all the other vessels in the harbour without producing the disease in one of them, sufficiently indicate the improbability of their being the efficient cause of the epidemic in question; while the others have never been known to occasion the fever, and are not of a kind to justify the idea of their doing so in any locality and under any circumstances.

Scarcely less important than the preceding is the history of the outbreak of the yellow fever on board of the U. S. brig *Enterprise*, in 1822. This case has been cited by contagionists, and supporters of the exotic origin of the disease, as one strongly illustrating the correctness of their views; while, by others, it has been more correctly regarded as showing the origin of the disease from sources of infection located in the vessel itself. The *Enterprise* arrived at the New York quarantine, on the 8th of July, from a cruise in the West Indies, via Charleston. Twenty-four days previous to her arrival, she had been three-days off the Moro Castle, Havana, whence she sailed for Charleston, somewhere between the 20th and 24th of June. She remained at Charleston eight days. The disease broke out in her the day she reached there, in the person of one of the lieutenants. He died on the 1st of July. The cases soon multiplied, so that by the time the vessel arrived at New York, they amounted to ten. On the next day they increased to thirteen, all of whom were transferred to the Marine Hospital, Staten Island. On the 11th, the number of cases had reached to twenty. It was then thought proper to bring all the men ashore, and to have the brig thoroughly whitewashed and cleansed, and her hold daily fumigated with nitrous oxide gas. Lime was slacked in her limbers, her iron ballast was whitewashed, and she was well ventilated by four windsails hoisted constantly in her hatchway.

Dr. Joseph Bayley, the health officer, in an official communication to the President of the Board of Health, says:—

"The crew were so intemperate during the few days that they remained on shore, that we were under the necessity of sending them on board. The brig had been purified in the interim. But it was soon evident that she was still an infected vessel, for in six days after the crew were sent on board, four men were taken sick with yellow fever, and, in the course of five days, seven more had the same disease, making one-fourth of all the men on board; and five of the eleven taken sick died. These persons must have been infected after their return to the brig, and subsequently to her purification, otherwise the disease would have been excited in them, as it was in the case of some of their shipmates, from their irregular living, and exposure to the weather, by lying on the ground at night." * * * *

"This fatal evidence of the cause of the disease still lurking in the *Enterprise*, induced us to have the crew brought on shore again, and recommence her purification, which was done by using two more casks of lime, by letting into her hold daily several feet of water, and keeping up windsails. Six men were left in charge of her, whose duty it was to pump out the water and trim the windsails," and they were directed not to sleep below in her hold.

"On the 2d August, twenty-five days after her arrival, and after repeated whitewashing, letting in water, and constant ventilation, one of the sailors obtained permission of a lieutenant to take his wife on board; this woman was taken sick with yellow fever on the 9th of August, and she died in the Marine Hospital on the 18th of that month."¹

In this case every unbiased mind must recognize the operation of a febrile poison originating in and restricted to the vessel. The disease could not have been derived from Charleston, for that city appears, from all the accounts to which I have had access, to have been healthy then, and to have remained so during the whole season. Besides, had it been otherwise, the disease, as we have seen, broke out the day after the arrival of the vessel, certainly too soon to justify the idea that the officer first attacked could have taken the disease there. Nothing is said, in the accounts of this visitation, of the sanitary condition of the Havana, at the time the *Enterprise* was off Moro Castle, and I have looked in vain in other publications for some definite information on the subject. Nevertheless, we are warranted in the conclusion that the port and city were then free from the fever in an epidemic or sporadic form, inasmuch as the *Macedonia*, which there lost so many men the same year, and left on the 24th of July, was the only vessel that suffered, a circumstance which would not have occurred had the port been sickly some weeks before. Besides, the *Enterprise* did not enter the port, but remained off the Moro Castle, where vessels usually ride with impunity. Neither is anything said about boat communication with the port, and about the officers and others who first sickened being those who *did* communicate, supposing such communication to have taken place.

The cause continued in full operation after all the crew had been removed, sick and well, and attacked individuals who ventured on board, precisely as occurs in infected localities on shore, after all the inhabitants have been removed, and that, too, after the process of disinfection had been gone through to a sufficient extent to destroy any amount of contagious germs or external effluvia that could have been introduced in the vessel. It is doubtful whether the contagion of smallpox would have proved so obstinate.

Other cases of evident infection generated on board of our vessels, and spreading among the officers, crew, or passengers, or on land in the vicinity, are on record, and are of a nature which admits of no doubt. A few more references will be sufficient.

¹ History of the Proceedings of the Board of Health of the City of New York, in the Summer and Fall of 1822, p. 142; see also pp. 15, 123, of same work, and Bayley's Report of the Epidemics of 1822, N. Y. Med. and Phys. Journ. i. 426.

In 1799, the sloop *Mary* was sent into Philadelphia as a prize to the ship of war *Ganges*. She was not from a sickly port, and, at the period of her arrival, there was no one sick on board. As soon as her cargo was removed, her decks were washed, and the hatches and ports all shut down. In this way she remained three weeks, the weather being at the time very hot and dry. The hold, and the interstices between the timbers, contained a quantity of vegetable matter (coffee), which—being mixed with the bilge-water and that which had fallen from the deck at the time of washing, aided by the high temperature and close confinement of the air—fermented, and gave rise to the development of highly offensive effluvia.¹

"The noxious effluvia," says Dr. Caldwell, "that were generated in abundance, having no vent to escape and be dissipated in the atmosphere, mingled with the air in the vessel's hold and produced in it an extreme degree of vitiation. A smell, resembling that of common bilge-water, but more offensive, became troublesome to those engaged about the wharf, and was at length traced to the place where the *Mary* lay. She was soon suspected as the source of this nuisance. Her ports and hatches were accordingly thrown open, when the foul air rushed out in torrents, and spread through the neighbourhood a suffocating stench."²

Several persons exposed to these effluvia were, in a few days after, seized with decided symptoms of yellow fever.

The following case, though happening in an English vessel, may, from the development of the disease taking place in one of our ports, find a place here. The British three-decked ship *Hibbert*, six hundred tons, arrived at New York in July, 1803, from Portsmouth (England), in ballast, and was ordered to ship a cargo of pine timber for the Bay of Honduras. The *Hibbert* had been used as a transport for soldiers between England, Nova Scotia, and the Bahamas.

"About the 20th of July, while the people were employed in clearing away the rubbish and stuffs between decks and below, it was observed that she contained a quantity of sand-ballast, which had remained there a number of years without being changed. It was, however, not taken out nor shifted." On scraping and overhauling the lower and middle decks, these and the timbers were found to be overspread with all manner of corrupt and excrementitious materials. The stench occasioned by the collection and removal of this trash and offal was intolerable. The men were obliged to run to the port-holes and hatches for fresh air. This filth was thrown overboard beside the wharf into the salt-water; but in performing this the whole ship became offensive. Several of the men employed, both among the sailors and hired labourers, were taken ill. "One of the seamen, after two days' illness, had symptoms of hemorrhage and black vomit, and was sent to the Marine Hospital, where he died." "The stevedore who loaded the ship was poisoned by the effluvium, and died, after hemorrhage and black vomit, early on the fourth day."

The heat at the time was very great, being from eighty-five to ninety-three degrees in the shade, "during the shining of the sun." It should be

¹ Caldwell's Med. and Phys. Memoirs, pp. 98-4. 1800.

² Ibid. p. 95.

added, that the city was then perfectly free from yellow fever, and that the disease produced in the *Hibbert* was not communicated by the sick. This vessel sailed for Honduras, and, as was anticipated, continued to be in an unhealthy condition. Several of her people died on the passage. After arriving at her place of destination, she was unloaded about two miles from the settlement of Honduras. While the work was going on, a number more of the persons employed on board fell sick and died of yellow fever. The disease was limited to them and did not spread.¹

If we now turn to the history of the yellow fever in English vessels at sea, or in British or foreign ports, we shall find many striking instances of the kind under consideration. Of these outbreaks, not the least interesting and conclusive are those which occurred in the year 1821 on board the armed transport *Dasher*, the frigate *Pyramus*, and an unarmed transport. They are recorded in an official report by Dr. Hartle.

The *Dasher* left Barbadoes for Tobago on the 26th of August, but, in consequence of severe gales, was obliged to go to St. Lucia. Proceeding thence to Tobago, she there received on board a company of the ninth regiment, and sailed for Grenada, in order that the men might avoid the endemic fever of the former place. This company, while on board, was perfectly healthy. On their landing at Grenada, the men were immediately placed in quarantine, and remained so for the space of fourteen days, during which period not an individual was sick. "The *Dasher*, after landing this company at Grenada, proceeded hither (*Antigua*); but a few days before she reached this port, yellow fever made its appearance among her crew, and previous to her arrival, six men had been attacked, two of whom died." The crew was landed, and the disease ceased among them. Blacks were employed to remove the ballast and clear the hull. At the urgent solicitation of Dr. Hartle, the limber-boards were taken up.

"Here, to the astonishment of every one, lay the mischief. On taking up these boards, the noxious effluvia surpassed anything that I had before experienced, and it was with difficulty that the blacks, who were accustomed to this work, could remain. The ship-carpenter, who had been constantly accustomed to work in the dock-yard, and on many such occasions, assured me that he had not before experienced so putrid a smell from any ship's hold. Between the timbers there was a collection of carpenters' shavings, &c. in great quantities. These had so completely choked up the limber-holes that the water could not pass to the well of the pump, and lay stagnant. The vegetable matter was, therefore, in a state of decomposition, and this, acted on by high atmospheric temperature, became neither more nor less than a marsh in the centre of the ship. "That the fever," continues Dr. Hartle, "was generated on board, by noxious effluvia received into crowded and badly-ventilated berths, is, I think, fully proved; for the moment the crew and marines were removed from the sphere of this hidden enemy, the disease ceased."

Nothing like the most distant appearance of contagion could be traced; for none but those residing on board the ship, or exposed to the effluvia from her hold, prior to her expurgation, suffered by the fever.²

¹ New York Medical Repository, vol. vii. p. 87, and vol. viii. pp. 71, 72.

² Facts and Observations in refutation of Sir G. Blane's Doctrines as to the Contagious nature of Yellow Fever, by A. Musgrave, M. D. Appendix B.—*Med.-Chir. Rev. and Journ.* vol. iv. p. 994.

The *Pyramus* left English Harbour perfectly healthy on the 19th October for St. Kitts, where she remained until the 28th, when she sailed for French Harbour. A day or two prior to her arrival at the latter place, fever, of a most alarming type, made its appearance among the officers and crew. The sick were landed, and the ship sailed for Barbadoes; but the disease continued to prevail. A medical board was assembled in order to investigate the probable cause of the sickness. In the first part of their report, the board attributed the cause, in some measure, to the coal-tar with which she was injected; for they particularly observed the offensive effluvia arising from that substance mixing in the hold with the bilge-water. In the second paragraph, they remark that the ship lay thirty-four days, at different times, in English Harbour; and in the next, consider, with respect to the predisposing cause of the disease, that something must be attributed to the stay of the vessel in that harbour. The vessel, at the suggestion of the board, sailed from Barbadoes and cruised as far as 28° north; but, finding this avail nothing, and that the disease became more alarming, the captain hastened to English Harbour, where he arrived on the 3d of January, 1822. The crew was there landed, the ship emptied of her stores, shot, tanks, ballast, &c. On the opening of her hold, the effluvia which issued surpassed anything Dr. Hartle had ever witnessed, and affected every one exposed to its influence. The quantity of filth which was taken out was sufficient to fill four large mud-boats, consisting of shavings mixed with coal-tar and the water; which, in consequence of the choking of the pumps had accumulated under the limber-planks. All the cases which occurred during the process of expurgation were easily traced to exposure to this bog; and Dr. Hartle very justly refuses to refer the disease to the influence of English Harbour, inasmuch as other ships of the squadron that lay much longer there escaped the infection. It may not be amiss to remark that the sick of this ship were landed and placed in the capstern of Antigua dock-yard on the 15th of January; that between that day and "the 30th, only eighteen cases occurred; but that on the 31st, six fresh attacks were added to the list, and the disease again appeared with increased violence and malignity." Dr. Hartle adds: "This sudden reappearance and violence of the disease induced me to believe that the people had some communication with the ship, which was then undergoing a general expurgation. This, with a little trouble, I ascertained to be the case." Changes were made in the distribution of the convalescents and the rest of the crew, and the disease was put a stop to completely. The crew re-embarked on the 14th of March in excellent health, and remained so.¹

¹ Musgrave, *loc. cit.* pp. 995-98. See also Burnett's Report on Fever of Ascension, p. 34.

Dr. Robert Armstrong ridicules the whole account of this severe visitation; denies the possibility of so much filth having accumulated in the ship, or if it had so accumulated, of its having produced the disease, and adds: "The following year, when serving in the West Indies, I met with two officers who belonged to the *Pyramus* at the time the fever prevailed; and on making inquiries as to the truth of the various reports in circulation respecting her, was informed by one, and his statement was corroborated by the other, that a certain domestic kept an open grog shop; and that drunkenness and irregularities had more to do with the fever than a little bilge-water, or a few dead rats in the hold. A staff assistant-surgeon, whom I met at Barbadoes, informed me that he had visited the *Pyramus*, but added, with a certain sarcastic sneer, that his vision was then defective, and that he could not see so far as other people," (*loc. cit.* p. 60.) When the reader is informed that the disease which pre-

As regards the transport above alluded to, the disease broke out on her passage from Barbadoes to English Harbour. The sick and all the troops on board were landed, and the vessel, after a partial cleansing, proceeded to St. Kitts; whence, having landed the stores and baggage, she returned to English Harbour. She then underwent a general purification, when a portion of the troops re-embarked and sailed for Grenada, where they arrived in good health—the fever not having reappeared on board.¹

"It is a pleasing reflection," adds Dr. Hartle, "and a source of great gratification to me, that notwithstanding 147 cases of yellow fever, as distressing and malignant as any I before witnessed, have been by the three vessels imported into this island since September, 1821, we have not had a single instance of any individual but those directly exposed to the local causes being attacked."²

Dr. Dickson, in a report to the Transport Board, alludes to the generation of the yellow fever in several vessels, the *Blonde*, *Gloire*, *Star*, *Wanderer*, and particularly the *Dart*. The disease broke out on board of the latter in April, 1807, and was satisfactorily traced to effluvia exhaling from offensive matter collected at the bottom of the water-tanks.

"So many people," Dr. D. remarks, "were taken ill, after going on board this vessel, lying guardship at Barbadoes, that it was difficult to account for it, except on the principle of contagion, until the peculiar construction of the ship, viz.: her being divided into compartments below so as to prevent the circulation of air and the stowage of the water in *bulk*, were adverted to, and on examining the large tanks, or cisterns, their bottoms were found covered with an offensive slimy mud or deposition."

On the removal of some of these causes, the knocking down of the bulk-heads and the cleansing out of the cisterns, the fever was put a stop to. In the *Thetis*, in 1809, "the fever did not appear until the hold was broken up, when about a dozen of men so employed were taken sick, and four out of five carpenters who lifted the limber-boards died."³

In his account of the fever which prevailed on board the *Nyaden*, the surgeon observes:—

"In clearing the after-hold, which was very offensive, several men immediately took the fever; some of whom died. This effect," continues Dr. Dickson, "is the more evident when contrasted with the healthiness of some vessels *close* to them, which were either accustomed to the climate or differently employed." Well could Dr. D., with these facts before him, remark: "The power of *impure* but strictly *local* effluvia in producing yellow fever on board ships, also, as well as on shore, is unquestionable."⁴

vailed on board of this ill-fated vessel was the true yellow fever; that the number of cases amounted to one hundred and two, and that of these, 30 died; he will feel no hesitation in admitting that drunkenness has seldom before or since produced such an extraordinary effect. The case should be recommended to the attention of Father Mathew. Other instances, similar to that of the *Pyramus*, fare no better at the hands of Dr. Armstrong, and are disposed of much in the same way.

¹ Musgrave, *loc. cit.* p. 998.

² *Ibid.* p. 999.

³ Dickson's Report in Bancroft's Sequel, pp. 208-9. Dickson on Yellow Fever, Edinb. Journ. vol. xiii. p. 26.

⁴ Bancroft, *Id.* p. 209.

Dr. Gillespie, whose work on the Diseases of the Leeward Island Station,¹ contains much useful information on the subject of the yellow fever, relates several facts of an interesting character relative to the matter before us. In speaking of the events on board the ships cruising in the West Indies during the year 1795-6, he remarks that at that time all the vessels of the squadron had their crews in good health, except the frigate *La Pique*, which had been captured and carried into English Harbour, in Antigua, to be refitted.

"In the beginning of November that frigate arrived at Martinico, and the remains of the crew had acquired a good state of health, though they had the sallow complexion which men generally have when confined in impure air. November the 12th, she sailed for Barbadoes, having received a draft of seventy-five men from the *Ganges*; from being embarrassed with a convoy and from unsettled southerly weather, the passage was long; two hundred French negroes were taken out of a vessel which was in danger of foundering, and were kept on board the *Pique* until her arrival at Barbadoes. They were confined some time in the hold. Such a mixture of men, strangers to each other, has been often found to occasion sickness in ships, and together with other causes fatally operated here, before the arrival of the ship at Barbadoes. A malignant yellow fever had made its appearance, and continued to rage with destructive violence amongst the crew of the *Pique*, and which is supposed to have proved fatal to 150 men. Out of the *Ganges* draft twenty-eight alone are said to have survived the epidemic. The negroes, it is probable, were saved by being disembarked on the arrival of the *Pique* at Barbadoes. This," continues Dr. Gillespie, "is a melancholy instance of the generation of a fatal epidemic on board of a ship, at a time when the inhabitants of Barbadoes and the crews of the other ships in company remained free from any such disease." P. 53.

To this we may add that Dr. Gillespie being, as every page of his volume attests, fully competent to discriminate between true yellow fever and the other forms of the disease observed on shipboard, his statement of the occurrence in the ill-fated vessel will of itself be sufficient to scatter to the winds all the doubts entertained by fanatic contagionists as to the possibility of that generation.

Scarcely less satisfactory, in illustrating the development of the yellow fever on shipboard, is the following case, communicated by Dr. Crawford in a letter to Dr. Trotter, and inserted by the latter in his *Medica Nautica*.² After remarking that previous to the British squadron appearing before Port au Prince, in May, 1794, none of the ships were afflicted with contagious diseases, and that though deaths had occurred, they were caused by the common remittents of the country, Dr. Crawford proceeds:—

"On the capture of the port, June 4, 1794, about forty sail of merchant-men were found in the harbour, most of them large vessels, the cargoes of which were coffee, cotton, sugar, and indigo, that had been stowed in them

¹ Observations on the Diseases which prevailed on board a part of his Majesty's Squadron on the Leeward Island Station, between November, 1794, and April, 1796. London, 1800.

² Vol. ii. pp. 97-8.

from one year to three, in which time many of them never had their holds opened from the disturbances that prevailed among themselves. On board of them men were sent from the whole squadron to fit them for the passage to Jamaica, which, from the state they were in, was not to be soon done. The weather was excessively warm, and some days elapsed without a breath of wind. The very first day the people proceeded to work, many were taken ill, and sent on board their respective ships with fever; several with strong convulsions that were succeeded by fever, and one or two died. I was sent to several to remove the sick, where I found the stench from the damaged coffee and sugar almost insupportable; it wanted no great degree of penetration to prognosticate the consequences in two, where there was a quantity of sugar, &c., melted in the hold. I saw the mixture in an actual state of effervescence, and bubbling up from every part. From these ships, I can vouch, the disease was first introduced to the *Penelope*. I most truly think that the primary cause of this horrid disease originated from these ships. One thing is most certain, that, if it did not originate there, it was much increased in virulence by our connection with them. After they were fitted out, on their passage to Jamaica, they lost more than three to one in comparison with the men of war, although this passage was not more than seven days. In the *Horizon*, on board of which was Lieutenant Gaeren and Mr. Stupart, of the *Europa*, the crew had been replaced three times, and from illness got in her died thirty men. Seven out of ten died on the passage to Jamaica; another of them was picked up at sea by a Guineaman, with every soul dead on board; even a number of negroes, who afterwards cleared them, died from fevers caught on board of them."

Dr. Chisholm is probably among the very last authors in whose writings we should expect to find any statements tending to show the local origin of yellow fever in the West Indies, whatever might be the case in Africa. And yet he has furnished us with a strong instance of the kind, in his account of the supposed introduction of the disease at Demerara, in August, 1800. The account was written by him at Demerara, where he then resided, and addressed in a letter to Dr. Davidson, dated August 10, of that year. It will be found entire in the *New York Med. Repository*, vol. v. p. 229, and is quoted by Dr. Bancroft, at p. 746 of his large work on the yellow fever.

"A fever of a most alarming nature," Dr. Chisholm says, "has most fatally prevailed since the beginning of July. I have visited a few of the sick at the request of Drs. Dunkin and Lloyd in town, and of Dr. Ord on the coast; and I have no hesitation in pronouncing it a fever of infection. Its features are almost without exception precisely those of the malignant pestilential fever of Grenada of 1793 and 1794. It is fully as fatal, as rapid, and as insidious. Its origin, as far as it has been ascertained by the gentlemen I have mentioned, seems to be similar.

"A ship arrived about the beginning of July or end of June from Liverpool, after touching at Surinam. The filth on board, occasioned by a cargo of horses, and the extreme neglect of the officers and crew, was such as beggars description. Infection was the consequence. Her officers were the first sufferers; every man died. All who went on board were attacked, within thirty hours after, with a fever of infection. What a lesson this to masters of vessels! How clearly it exhibits the necessity of exertion on their part to maintain cleanliness on board their ships! And how evidently does it display their responsibility to the public for the consequences of misconduct!"

This, if all really happened as stated—and on this subject the reader must judge for himself—is as clear a case of the generation of the yellow fever poison on shipboard as could be desired. It is, indeed, admitted as such by Dr. C. Whatever he may have thought of the manner in which the disease spread, after it had fairly been established in the place, nothing is said or hinted at calculated to lead to the supposition, that the vessel had received the infection at Surinam; and it cannot be supposed that any one will entertain the idea of its having been imported from Liverpool. If, therefore, the fever broke out in the way mentioned, it must have arisen from causes located in the vessel itself. As to its contagious nature, although Dr. Chisholm, as all might have foreseen who are familiar with his decided opinion on the subject, did not hesitate to pronounce in the affirmative, it would seem that Drs. Ord and Durkin, to whom, as we have seen, he refers, and who probably had more experience in the matter than himself, as he was not then in the practice of his profession, entertained a different sentiment; for we are informed by Dr. Bancroft (p. 747), that both these physicians stated to him a few years after, that they had never seen any fever in Demerara, or on that coast, which they believed to be contagious.¹

¹ “Ships containing wine in their holds in a state of decomposition, are generally extremely sickly, and the character of the prevalent disease is that of yellow remittent fever. Several instances of this took place in Fort Royal Bay, in the years 1797, 1798; and the situation of the ships in the open bay, far from the influence of marsh effluvia, precludes a suspicion of the fever proceeding from that cause.” “The ship Nancy, Capt. Needs, from Fayal, with a cargo of wine for the army, arrived at Fort Royal, Martinico, in the month of October, 1798. She met with a gale of wind at sea on the 17th September, and several of the casks, from the motion of the ship, became leaky. The captain was actually taken sick at sea, and died with every symptom of the highest grade of yellow remittent fever. The mate and several of the crew were attacked with the same complaint; they recovered; but a mate, shipped at Fort Royal, fell ill on board and died. The ship lay out in the open bay; no vessel near her was sickly; and she herself became very healthy after the cargo was landed.” —*Chisholm*; vol. i. p. 379.

As Dr. Chisholm denominates the disease thus produced yellow remittent fever, and regards it as essentially different from what he considers to be the true malignant yellow fever—the former being of local origin—produced by malarial exhalations, and destitute of contagious properties, and the latter arising from morbid effluvia emanating from human bodies, originally imported from the western coast of Africa, and transmitted from individual to individual, or through means of fomites, it may be urged that the instance of infection on board of the ship Nancy cannot find a suitable application in pages, the object of which is to show the origin of yellow fever in ships from the evolvment of poisonous effluvia; for what might be true of the one might not necessarily be so of the other. But if, while bearing in mind the ill success of Dr. C., in his endeavours to prove the introduction of malignant yellow fever into Grenada by the ship Hankey, in 1798, and hence into other places, as well as the contagious character of the disease, we turn to the description of his yellow remittent fever, contained in the first volume of his work, and of the epidemic recorded by him in Duncan's *Medical Commentaries* for 1798, and compare it with that he gives of the

The case of the *Regalia*, mentioned by Dr. Ferguson,¹ and that of the *Rattlesnake*, described by Dr. Wilson,² afford the most satisfactory proof of the local origin of the yellow fever on shipboard, either from a particular condition of the vessels themselves, or from their ballast or other contents.

The first of these vessels, the *Regalia*, sailed with black recruits from the coast of Africa, for the West Indies, in 1815. The ship was good, and her crew healthy during the time she was employed on the African coast, until she took on board, a very short time before the blacks were embarked, a very large quantity of green wood, cut down and stowed away the same day. The fever prevailed with great malignity among her crew, and continued to do so up to the time of her arrival at Barbadoes; attacking all on board excepting the blacks, who were exempt from the fever when they embarked, and continued so to the last. From the healthy condition of the crew during their stay on the coast, the absence of fever among the black troops embarked, we are naturally led to look to other agencies than contagion to account for the origin of the disease. These are easily found in the quantity of green wood stowed on the African coast, and the condition of the ballast. The quantity of wood laid in appears to have been considerable, for, as Dr. Ferguson remarks:—

“After she had been several weeks in the West Indies, there were still as many tons of it left as, in the master’s opinion, would serve for a voyage to Europe. The ballast, too, had never been changed or shifted from the time the vessel left England, nor for any discoverable time before. It was what is called shingle ballast, small stones, with a considerable mixture of mud and other impurities.” “And it had been much spoiled by the leakage from the water-casks. The ship, in respect to leakage, was far from being a dry ship, and from that circumstance might, with better ballast (of iron or large stones), have proved a very healthy one; but the absorption of sea-water among foul ballast and green wood, could scarcely fail to prove unwholesome.”

That the cause of the fever resided in the hold of the ship, is proved by the fact that the cleaning of that part proved particularly injurious to those exposed; and that while the fumigation of the ship proved of no avail in purifying it, the fever ceased when she was completely cleaned, and, with her hatchways closed, her whole hold had been exposed to the concentrated heat

fever of Grenada, and those we possess of the yellow fever of this country, Europe, and tropical climates generally, we shall find just cause for suspecting that the difference between them is not as great as that distinguished physician so confidently asserted; and that his yellow remittent fever, and his malignant pestilential fever, constituted at best but two forms of one and the same disease. I may add, before closing this note, that the *Nancy* is not the only vessel in which Dr. Chisholm, contagionist as he is, admits that the true yellow fever originated; for he states, as his opinion, that the disease which he thinks was introduced into Grenada in 1793, by the ship *Hankey*, “was generated on board” of that vessel “during her disastrous detention at Bahama.”—Vol. i. p. 318.

¹ An Inquiry into the Origin and Nature of the Yellow Fever, as it has lately appeared in the West Indies, &c.—*Medico-Chir. Trans.* viii. p. 108.

² Memoirs of West Indian Fever, &c., commonly called Yellow Fever, p. 85. London, 1827.

of many stoves; and if further proof that contagion had no part in the origin of the disease is required, it will be found in the fact, to which attention has already been invited, that though the *Regalia* communicated freely with the seaports of Barbadoes and other islands, landing the sick or dying subjects of that disease among the inhabitants, or at the hospitals, the infection was not communicated anywhere; and that, after being purified, she sailed from Guadaloupe to Europe, crowded with prisoners, having on board a case of fever which terminated fatally, without communicating the disease to those around.

The *Rattlesnake* was lying at Port Royal when, on the 8th of August, 1824, the yellow fever broke out in her. For some months previous to that date, there had been very few cases of fever at Port Royal, either in the squadron or on shore. Two came to the knowledge of Dr. Wilson, during the time the *Rattlesnake* was in harbour, but with neither of them had the individual first attacked the power of communicating. From the 8th of August till the 10th of September, there were occasional cases—in all, nineteen. But after the last date, the disease assumed an epidemic appearance, passing rapidly through the ship's company, and affecting seventy persons within the month. From the 10th of October it gradually declined, and finally disappeared about the end of the following January. On the 27th of August, 1824, the ship went out of harbour on a cruise to leeward, and returned to Port Royal on the 27th of September with forty men ill of fever. Twenty-seven cases were sent to the hospital the same day, in different stages of progress, and for some time afterwards, three, four, or five were sent thither daily. As has been noticed in innumerable instances of the kind, the patients landed did not communicate the disease to their attendants, or to the other sick in the hospital; and when, bearing this in mind, we recollect that the fever began by occasional cases, the subjects of which had not been near people labouring under it out of the ship, and proceeded in that manner for about a month, at the end of which it assumed the character of a severe epidemic, we may conclude that it did not originate in, and was not propagated by, contagion. When, as Dr. Wilson remarks, "we were sending" so many men to the hospital daily from the *Rattlesnake*, almost every fresh man whom we received was attacked by the fever; and it might thence have been inferred that the strangers received the disease from the men among whom they lived; but we had at the same time proof that those men could not communicate it to another when removed from the ship. We had, therefore, 'the bane and the antidote both before us,' and conviction arose from the whole, that the disease at that period could not possess contagious properties; for it were futile to say that it possessed those properties in the ship, but lost them the instant its subjects were removed a hundred yards from its source."

The conclusion, therefore, is natural, that the crew did not take the disease from each other, or from the harbour; but that, like the strangers who came aboard, they received the infection from a cause inherent to the vessel itself. To this we shall the more readily give our assent, if we take into consideration the following account of the limited range of its prevalence on board, and of its mode of progression:—

"In the *Rattlesnake*, the fever was first manifested near the main hatchway; the marines, and the midshipmen of one berth, suffered its earliest and

most severe effects. Afterwards, it proceeded forward rapidly, but pretty regularly, till it had affected almost the entire ship's company; but it did not go beyond the steerage in the opposite direction, no one being attacked in the gun-room except the purser, and I have good reason to conclude that in his case it was derived from the shore." "But its local origin and limited range of action were most strikingly exemplified in the berths of the midshipmen, and other officers of that class. They were placed exactly opposite to each other, with the pumps at equal distances between them. Only one gentleman was affected in the starboard berth, while every member of the larboard berth was laid up nearly at the same time. The hatch of the pump-well is opposite to, and within three feet of the larboard berth. The members of that berth were generally the junior officers of their class, and were, therefore, it may be said, most susceptible of the disease; but when it is remembered how extensively it prevailed, and how indiscriminately it attacked persons of all ages and temperaments among the ship's company, after every allowance is made for the greater susceptibility of these young gentlemen, the exemption of the others, senior only by a few years, is too striking and complete to be accounted for by their former service, or by any accidents which can reasonably be supposed to have affected them. It can fairly be attributed only to their not having been exposed to the cause of the disease with the same concentration of power, or permanence of operation, as the others; and here the contiguity of the pump-well hatch to the larboard berth cannot be overlooked." — *Wilson*, pp. 159, 160.

That the cause was not the product of contagious germs derived from the shore, is farther inferred from the fact that other vessels lying close by were not affected.

The *Primrose*, for example, was commissioned about a month after the *Rattlesnake*, and arrived at Port Royal about a month later, viz., about the end of July.

"She was employed, I may say, exactly as the *Rattlesnake* was. After a very short cruise, she lay six or seven weeks, including September, within a few yards of where the *Rattlesnake* lay, and was employed in the same manner. She then followed the *Rattlesnake* to Chagres and the coast of the Spanish Main, where she encountered similar weather, and remained about six weeks; she then returned to Port Royal healthy, and continued so, and that while the *Rattlesnake* was converted into a complete hospital from the epidemic prevalence of West Indian fever. On the other hand, in 1825, while the *Lively*, *Pylades*, and *Ferret* were half unmanned, the *Rattlesnake* lay close to them, in Port Royal harbour, for the space of eight weeks, and did not lose a man." — *Ib.* p. 140.

The next case I shall invite attention to, as illustrating the spontaneous origin of the yellow fever on shipboard from local causes of infection, is that of the *Scout*, sloop of war.

This vessel, with a complement of one hundred and two men, arrived at Port Royal, Jamaica, on the 13th May, 1822, from England (having previously touched at Barbadoes), in a healthy state. Every precaution that could be devised was taken to secure the health of the crew. The hold was cleansed, whitewashed, dried by means of stoves, ventilated, &c. During the illness of the captain and 1st lieutenant, and the absence of the 2d lieutenant on detached service, the crew indulged in excessive drinking, exposed themselves greatly to the dew at night by sleeping on deck, while, from the

nature of their duty, they were much exposed to the heat of the sun. These men were mostly young, full and plethoric Europeans, newly arrived in a tropical climate. After a three weeks' indulgence of this kind, fever broke out among them; nine were sent to the hospital, labouring under the disease, of whom four died. "At that time there was not a patient with fever in the hospital, and the other ships in the squadron in Port Royal were remarkably healthy."¹ The Scout sailed, in this state, on the 14th of June, and on the 28th arrived off the Havana. The weather was excessively hot, the thermometer ranging from 86° to 89°. From five to seven, with fever, were daily added to the sick-list. The number confined at one time amounted to forty, thirty of whom were in bed, many of them afflicted with black vomit and delirium. "The awning was spread across the main deck, and everything done for the accommodation of the sick; but this space was no sooner prepared than filled." The disease could not be mistaken. The symptoms were of the most malignant character; being, in some instances, accompanied with buboes. The vessel being unable, from her distressed state, to return to Port Royal, made for New Providence, and there landed her sick on Hogg Island, as they were not admitted into the hospital for fear of contagion.

"Hogg Island, in the dry season, is a place healthy enough; but, unfortunately, when the Scout got there, the rain commenced, the type of the disease in many changed, and terminated in intermittent fever, thus adding one disease to another, and, consequently, protracting their recovery." P. 44.

Sir W. Burnett remarks that the instances of contagion mentioned by the surgeon appear to him so unequivocal, that it is altogether unnecessary to say a word on this head. As I have not access to the report from which the preceding is taken, and have derived what has been said from the narrative of Sir W., it is impossible for me to judge of the degree of credit to which these facts are entitled. But whatever may be thought of the power of reproduction acquired by the disease after its manifestation, there can be but one opinion, from the absence of infection in the neighbouring ships and hospitals, of its having originated on board.

The history of the outbreak and prevalence of the yellow fever on board of the steamer *Eclair*, in 1845—the supposed cause of the introduction of the disease into Boa Vista, has often been the subject of discussion, and must next engage our attention.

This vessel sailed from England for the west coast of Africa in November, 1844. After reaching Ascension, and being properly fitted, she proceeded to the coast, and was employed in watching for slavers off Sharbro and Seabar, from December, 1844, to the 8th of July, 1845. Up to March 2 of that year the crew continued in health. After that the boats were sent up the Sharbro and Seabar Rivers, exposed to all the vicissitudes of the weather and to malarial effluvia; and several times the men slept ashore or in the boats; the vessel, in the meanwhile, remaining at anchor from three to six miles off the coast. From the 3d to the 10th of June, there were seventeen cases of fever, and ten deaths, all of the latter occurring in men who had been employed in the boats. On the 4th of July the *Eclair* arrived at Sierra Leone, with improving health; the last remaining

¹ Burnett's *Official Report on the Fever which appeared on board H. M. Ship Bonn*, &c. Lond. 1824, p. 42.

cases advancing towards convalescence. Her berth was not particularly unfavourable. The men had limited leave, and several of them slept on shore. They were also employed in clearing out the *Albert*, another steamer, which, like the *Eclair*, had formed part of the Niger expedition, and which had remained untouched since.

On the 19th of July a case of fever was reported; and four days after the vessel left Sierra Leone, having the *Albert* in tow, and anchored off the coast till the 9th of August. During this time there were fifteen cases and six deaths, the latter being preceded by unequivocal black vomit. On the 9th of August, the *Eclair* arrived at Gambia, and left on the 15th, reaching Goreé on the 16th; and, being refused pratique, she proceeded to Boa Vista, where she arrived on the 21st, with five fever cases on board. The number of these now increased so rapidly, that on the 31st the crew was landed on a small island two miles from the capital (Porto del Re), the sick being placed in the rooms of a dilapidated fort; and the well in tents pitched along the walls, or in apartments separate from the sick.

Here, however, the disease continued to extend, and the mortality, far from diminishing, became more alarming. In consequence of this, the crew was reshipped on the 13th of September, and the vessel steamed for England, having been previously cleaned, and, as it was supposed, purified. But the fever, which from the 9th to the 13th had appeared to assume a less violent character, acquired additional malignancy as soon as the vessel reached the open sea. After touching at Madeira, on the 20th, where she was refused pratique, she arrived at the Mother Bank on the 28th. During the passage from Boa Vista, forty-one cases occurred; out of these twelve ended fatally. After the vessel had reached the Mother Bank, nine fresh cases and five deaths—all traced to the vessel—were added to the list, including the pilot, who had come on board but a few days before, and a medical officer, Dr. Rodgers, who had been sent to attend the sick.

The question of the introduction of the fever into Boa Vista, which has given rise to an animated controversy, is foreign to the object of the present inquiry, and must, therefore, be passed by unnoticed.

The disease from which the men suffered while on the coast of Africa was undoubtedly the common remittent fever of the country. All the cases, as we have seen, with the exception of two, were supposed to have been traced to exposure in boats. These two had not left the ship. Dr. Bryson¹ is of opinion that they may have derived the disease from the emanations from the shore, to which, notwithstanding the distance, they must have been more or less exposed. Dr. King, in his report, has expressed his doubts on the subject, remarking that it is not clear that the remaining seven of the seventeen who were attacked, had been employed in the boats, and inclining to the belief that the cases were due to causes located in the vessel. But however this may be, and whatever may have been the nature of the disease thus produced, and which had ceased before the vessel reached Sierra Leone, there can be no difficulty in deciding that the fever which prevailed on board *after* the vessel left that place, bore the characteristic marks of true yellow, and not of common African remittent fever. Whether, with Dr. McWilliams,

¹ Report on the Climate and Principal Diseases of the African Station, p. 184.

we are to view the disease as having been originally of the latter kind, and as having changed so much for the worst during the passage from Sierra Leone to the Gambia and Boa Vista, and especially while the crew were at the fort, as to assume the character of yellow fever, and acquire contagious properties, or whether, with Sir W. Pym, we are to conclude there were two distinct fevers on board—marsh fever, in April, May, and June, and the true bulam, or yellow fever, from the 23d of July (the day she left Sierra Leone) to the time of her arrival in England—are questions upon which it is unnecessary to dwell here. Certain it is that the fever could not have been the result of imported contagion. At the time the *Eclair* lay at Sierra Leone, up to the day of her leaving for the Gambia, there existed no epidemic condition of the atmosphere at that place; and, although the rainy season had commenced, there prevailed no fever from which that of the ship could have been derived. On this we have the testimony of Dr. King, who subsequently learned, when he visited the place, that there had not been anything unusual at that time, either in the nature or amount of disease in the settlement. “It is not hinted that the sailors were exposed to infections from persons actually labouring under the disease; indeed, it is not certain there was a single case of sporadic yellow fever previous to their arrival. I am at a loss, therefore, to understand how its origin can be explained on the principles of contagion,” (p. 11.) The cases which occurred after the departure of the vessel, could not, therefore, have been carried from the shore, and served to disseminate the disease afterwards. Nor is it less obvious that the absence of an epidemic at Sierra Leone forbids the supposition of the vessel having carried thence a tainted atmosphere capable of affecting the crew during the rest of her melancholy history, or of the crew having imbibed a quantity of poison, which, after remaining dormant in their system, broke out at different times, up to their arrival in England. And yet, as we have seen, from the day of the *Eclair* leaving that port, to the 9th of August, fifteen cases occurred on board; and from the 19th of July, when the first case presented itself, to the 31st of August, when the crew were landed at Boa Vista, forty-four cases and sixteen deaths were reported. These cases must have been derived from causes existing on board; for no idea was entertained, up to that period at least, that the disease was propagated by contagion; and it is admitted, by Dr. McWilliams himself, that it did not manifest such property prior to the arrival of the vessel at Boa Vista. Even admitting that the crew and officers could have imbibed the poison at Sierra Leone, the disease by which some of them were attacked during the close of the passage, and especially on their arrival at Boa Vista, could not have been the result of such an exposure, inasmuch as the time which elapsed between that period and the moment of the attack, was too long to explain the occurrence on the principle of incubation.

“Without assuming at present,” as Dr. King justly remarks, “that there were any just grounds for believing that the cause or causes of the fever had

a local origin in the ship, it may be inferred that the idea was entertained by the superior officers, or they would never have attempted to clean the holds at Sierra Leone in the rainy season, and within one month have again commenced the same laborious work at Boa Vista; and it is equally improbable (but from some apprehensions of the kind) that they would have removed the men from the ship, and lodged them, at that hot season, in such a miserable place as the fort at Boa Vista." P. 11.

When we take into consideration the continuance and increase of the fever on board—when we learn that after the crew—the sick as the well, had been landed at Boa Vista, a lieutenant, the paymaster, the purser, and the clerk of another vessel, the *Growler*, were ordered, on the 7th and 9th of September, to survey the infected steamer, and that of these officers, the lieutenant, purser, and clerk were severely attacked—the second when actually on board, though there was nobody there to communicate the disease;¹ when, besides, we find that the pilot, who came on board in England, took the fever, though he did not communicate with the sick, had brought his bedding, and had not slept below; that some men who were employed to clear the hold in England, after the crew had been transferred elsewhere, were attacked with the disease in a mild form; and finally, that the sick, when removed, did not communicate the fever to any of their attendants, we may safely conclude that the latter arose from the foul state of the hold. Were it necessary to adduce additional reasons for arriving at this conclusion, we could find them in facts furnished by the subsequent history of the vessel, and which show that, notwithstanding all the efforts that had been made at Sierra Leone, Boa Vista, and England, to cleanse and purify her, she long continued in a foul state, and was again, in consequence, the seat of malignant fever. Weeks or months after the people had left the ship, and when she was recommissioned, a large collection of mud, fully three inches in depth, was found on removing the engine, under that portion of the bottom occupied by the boiler and machinery, which apparently had not been disturbed for a long time.² The steamer left England for the Cape of Good Hope, on the 23d of February, 1847. Soon after sailing, a man was attacked with fever, which, though at first of a mild character, assumed malignant symptoms after the ship had entered the tropics. When off the Island of St. Nicholas, and almost in sight of Boa Vista, the man died, having had, for two days previous, black vomit, and other characteristic symptoms of the yellow fever. Within a few days afterwards, the steamer arrived at Ascension, where Dr. King was then stationed, with several new cases of the same disease on board.

¹ Burnett, *Official Correspond.* p. 74, and *Edin. Med. and Surg. Journ.* Oct. 1847, p. 495.

As there had been occasional cases of fever in the *Growler* (Steward, in *Official Correspond.* p. 89, and *Edinb. Med. and Surg. Journ.* Oct. 1847, p. 509), those adverted to may not have really originated in the *Eclair*, though it would be strange that, while there was no disease in the *Growler*, three out of four officers who had visited the other vessel should be attacked, if the cause did not reside in the latter.

² Bryson, 223; King, 12.

"The patients themselves," as we are informed by Dr King, "attributed their illness to foul air in the fore part of the ship; one of them said he suffered so much from an abominable stench in the boatswain store-room, that he represented the circumstance, and obtained permission to cut a hole in the floor, which exposed to view a considerable quantity of soft mud; and five or six buckets full of it, mixed with decayed shavings, and emitting an offensive odour, were removed at the time."¹ Pp. 12, 13.

In all these instances the disease was traced to communication with the vessels concerned; or to exposure, at a greater or less distance, to the atmosphere contaminated by the effluvia issuing from them. In none was it due to the introduction of a contagious germ through the agency of the sick, merchandise, or effects; in all, the febrile poison was generated on board. Were it necessary, similar examples of this mode of origin might be adduced from the history of the British vessels—the *Childers*;² the *Isis*;³ the *Ferret*;⁴ the *Scylla*;⁵ the *Thracian*;⁶ the *Iphigenie*;⁷ the *Wasp*;⁸ the *Tribune*;⁹ the *Farmer*;¹⁰ the *Bustard*;¹¹ the *Pylades*;¹² the *Antelope*;¹³ the *Tigris*;¹⁴ the *Scamander*;¹⁵ the *Brazen*;¹⁶ the *Busbridge*;¹⁷ the *Pompey*;¹⁸ the *Bedford*;¹⁹ the *Powerful*;²⁰ the *Blossom*; the *Kent*;²¹ the *Circe*;²² the *Trinidad*;²³ the *Ser-*

¹ Dr. John Wilson remarks, in his *Statistical Report on the Health of the West Indian and North American Squadron*, that the progress of clearing, perfectly cleansing, and then restowing ships of war in the West Indies, with the view of guarding against invasions of fever, are common; but it is a fact, however startling or difficult of explanation, that they are very generally followed, in no long period, by a serious visitation of the disease. "What relation there is between the purifying process in question and the subsequent eruption of fever, if it be an operative relation, may never be satisfactorily known; that the one frequently, generally, follows the other is certain," (p. 85.)

This occurred on board the *Blossom* (surveying ship), in 1835, while off Balize. "No fever of the kind existed at Balize, or any point of the Bay of Honduras, at the time it broke out in the *Blossom*, nor does any appear to have occurred during its cruise," (p. 85.) The same result was observed on board the *Forte* (frigate), in 1835. P. 110.

"When the holds of the *Growler* were opened at Woolwich, after her return from the coast of Africa, two men who slept directly over the hatchway were seized with fever, possessing all the characteristics of yellow fever, and in the course of a few days they both had black vomit, and died in the Marine Infirmary, where they had been taken at the commencement of the disease."—Bryson, p. 224; Burnett, *Official Correspondence on the subject of the Eclair*, p. 71.

² J. Wilson, pp. 159–160; Birnie, *Edinb. Med. and Surg. Journ.* vol. xiii. p. 383.

³ *Ibid.* p. 154. ⁴ *Ibid.* p. 161. ⁵ *Ibid.* p. 161. ⁶ *Ibid.* p. 140. ⁷ *Ibid.* p. 142.

⁸ *Ibid.* p. 92. ⁹ *Ibid.* p. 92. ¹⁰ *Ibid.* p. 92. ¹¹ *Ibid.* p. 92. ¹² *Ibid.* p. 92.

¹³ Birnie, *Edinb. Med. and Surg. Journ.* vol. xiii. p. 385. ¹⁴ *Ibid.* xiii. p. 385.

¹⁵ *Ibid.* ¹⁶ *Ibid.* ¹⁷ Brice on Yellow Fever, p. 19.

¹⁸ Dickson, *Report in Bancroft's Sequel*, p. 172, 3 (note).

¹⁹ Blane, ii. p. 118; Sir W. Burnett on the Bann, pp. 28–29.

²⁰ Wilson, *Statistical Report of the Health of the Navy*, p. 85.

²¹ Burnett on the Bann, pp. 82, 83.

²² Dickson on the Yellow Fever; *Edinb. Journ.* xiii. p. 48. *Bancroft's Seq.* 140.

²³ Johnson on Influence of Tropical Climates, first ed., p. 164; *Bancroft's Seq.* p. 211.

pent;¹ the Pilot,² and others; but enough has already been said on the subject to place the question of that origin beyond the possibility of a doubt. Nor have French writers on the yellow fever been less explicit in the expression of their belief in the reality of the generation of the poison on shipboard, or less careful in recording facts in illustration of it.

More than a century ago, Desportes regarded the disease as arising often from the foul condition of ships, and attributed the escape of a vessel, the *Jason*, of 74 guns, in 1746, at St. Domingo, to its extremely leaky condition, by which the sources of exhalation in the hold were submerged.

"Although," he remarks, "the quantity of the water pumped out of the hold of a ship may not appear to be a sufficient cause of disease, yet it must become so, and contribute greatly to that effect, when the constitution of the season aids in increasing the exhalations, which fill the air with noxious principles."³

Dalmas⁴ relates the case of the *Souverain*, a 70 gun ship, in which the fever broke out, and prevailed extensively during the passage from Europe to the West Indies. In this case the fever attacked more readily and was more fatal to the artillery men and soldiers who slept on the lower deck. Those who slept on the gun-deck were less severely treated; while those employed in the rigging, as also the officers, escaped almost to a man. These facts, when taken in connection with the circumstance that the disease commenced at sea, and without the vessel having communicated with contaminated ships in port, show that the cause of infection was located in the hold.

Dr. Chervin's documents contain several examples of the generation of the yellow fever at sea, before the infected vessels had reached West India ports.⁵ Rochoux⁶ refers to several interesting instances of a somewhat similar kind. The following is worth recording:—

The brig *Le Messenger*, forming part of the West India squadron, under the command of M. De Menars, was sent, in 1817, to St. Martin, to collect wood. The hold of the vessel was filled with mangroves. But the effluvia arising from these trees occasioned such a degree of infection, that in a short time the greater part of the crew were attacked with fever, and many died, and among them the captain.⁷

This case is the more interesting to us, as the relator, while properly referring the disease to the effluvia arising from the mangroves, labours hard in the volume quoted, and in other publications, to establish a distinction between the fever of tropical climates and that of Europe and this country,

¹ Bryson's *Statist. Report of the Health of the Navy* (British), p. 101.

² *Ibid.* p. 116. Second Report on Quarantine, &c. p. 67.

³ *Histoire des Maladies St. Domingo*, i. p. 162.

⁴ *Recherches Historiques et Médicales sur la Fièvre jaune*, 2d ed. p. 84.

⁵ *Rapport lu à l'Académie Royale de Médecine, sur les documents de M. Chervin*, p. 9.

⁶ *Recherches sur les différentes maladies qu'on appelle fièvre jaune*, pp. 151, 2.

⁷ *Ibid.* p. 61.

attributing the latter to local infection, and the former to the mere action of heat.

We read of the brig *Fabricius*, of Marseilles, in which the yellow fever broke out at sea before it had reached Fort Royal, during the sickly season of 1818, and which arrived there on the 29th of September with several sick on board.¹ The distance at which this vessel was from the coast at the time of the outbreak of the disease, forbids the idea suggested by Kéraudren,² that the infection was due to the wafting of the effluvia from the shore.

We read also of the *Columbia*, which arrived at Marseilles from Rhode Island in 1802, with the yellow fever on board;³ and of the *Nicolino*, which suffered there in 1821 from the same cause.⁴ In neither of these vessels could the disease have arisen from any but local causes. As regards the former especially, the idea of a foreign source is inadmissible; for the *Columbia* had sailed from Rhode Island, where, as we know well, the disease did not prevail at the time of her departure.

The French brig of war the *Euryale*, commanded by M. Villaret de Joyeuse, was attacked with the yellow fever while on a cruise, and compelled in consequence to seek shelter in Fort Royal, Martinique, about the close of June, 1821. Before reaching that port, the *Euryale* had already lost six men, and among them the surgeon, and at the time of her arrival the sick-list was very large. The sick were sent to the hospital, and the convalescents removed to Fort Bourbon. In neither of these places was the disease communicated to the attendants or others; but, on the other hand, a number of men who were sent to work on board were seized with the fever, and several died. In this, as in other instances, the disease did not extend beyond the focus of infection where it had originated, and where it affected those who exposed themselves to its action.⁵

Dr. Lefort, to whom we are indebted for the above case, adduces (p. 16), as additional proof of the local origin of the yellow fever on shipboard, the account of three other vessels of war, the *Egerie*, the *Diligente*, and the *Silene*, which, during the sickly season of 1821, anchored at Trois Islets, a port situated at the bottom of the Bay of Fort Royal, Martinique. During their stay, the *Egerie* was attacked with fever and lost a great many men. She was ordered to sea; but the disease increasing instead of being arrested, she re-entered the port, and there went through the usual process of purification. While the *Egerie* was at anchor at the Trois Islets, the intercourse between her and the *Diligente* and the *Silene* was in no way prevented; notwithstanding which, these vessels remained perfectly free from the disease. On the 19th of October, the *Diligente* proceeded to Fort Royal, and soon after was itself attacked with the fever. On the 30th, she was ordered to sea in company with the *Silene*, and during the passage from Martinique to Porto Cabello, but more especially after

¹ Lefort, *Journal Générale de Méd.* Nov. 1820; *ibid.* Réponse à Kéraudren, pp. 29, 31.

² *Loc. cit.* p. 81.

³ Robert, *Guide Sanitaire*, 708.

⁴ *Ibid.* 244, 622, and Broussais's *Annals*, Oct., 1821. Robert, *Observations sur la Fièvre jaune importée à Pomegues en 1802, 1804, 1822*, p. 132. See two interesting letters on the subject, by Dr. Ségaud, in Berthe's volume on the Yellow Fever of Andalusia, p. 395.

⁵ Lefort, Réponse à M. Kéraudren, p. 13; *ibid.* *Journal Universel des Sc. M.* Oct. 1821; *ibid.* *Obs. des Sc. Med. du Marseilles*, v. 208; vi. 311.

a week's sojourn in that place, suffered extensively from the disease. During the whole of this time, the *Silene* continued free from the infection, although daily visited by men from the suffering vessel. It is scarcely necessary to remark, that if the *Egerie* had derived the disease from the atmosphere of the *Trois Islets*, or from contagion, the *Diligente* and the *Silene* would, being exposed to the same causes, have shared a similar fate; and had the *Diligente* not suffered from the action of some cause inherent to the vessel itself, it is difficult to understand how its companion, the *Silene*, could have escaped so effectually the inroads of the fever, exposed as it was to the same atmosphere, communicating in the same way with the shore, and visited frequently by the crew of its infected companion.

To the same effect, we have the case of the brig *Donostierra*, at the port of *Passages*, in the autumn of 1823. This port, in the province of *Guipuscoa*, is situated at the bottom of the Bay of Biscay, and forms a sort of appendage to *St. Sebastian*. The entrance to it is between precipitous rocks, and is so narrow and oblique as to be with difficulty discovered. The town, whose population is very small, consists of one street, placed on a shelf of rock, so narrow that it does not admit of the passage of carts, and scarcely of horses, while the base of the Mountain of *Oleaso* is almost in contact with the houses, which are badly ventilated, filthy, dark, and crowded.¹ This vessel sailed from the *Havana*, with a clean bill of health, in the beginning of June. The crew consisted of twenty-two men, including the captain, and there were besides five passengers on board. As to the cargo, it consisted of sugar, coffee, tobacco, yellow wax, honey, and preserves. Ten or twelve days after being at sea, one of the sailors died of an acute disease, which, however, the captain denied to have been the yellow fever. "After a passage of thirty-five days, the vessel touched at *Corunna*. The captain reported this event to the medical junta, in consequence of which the vessel was ordered to quarantine ten days. At the expiration of this time it proceeded to *St. Andars*, remained some days in that port, and next directed its course to the *Passages*, where it arrived on the 2d of August," two months after leaving the *Havana*. During the whole of that period, the crew and passengers had remained in good health, and as at the period of arrival there were no sick on board, and as she had been at *Corunna* and *St. Andars*, she was not here put in quarantine. The cargo was discharged on the 6th of August, and for several days a great many people went on board without contracting any disease. On the 19th, carpenters were employed in removing some of the planks of one of the sides, which were found greatly decayed. The first individual attacked with the fever was a custom-house officer who had slept several nights on board. He sickened on the 15th, and died on the 17th. The carpenters were soon all affected, and the greater number of them died. On the 23d and 24th, two women who had communicated with the vessel during the week, and who occupied a house situated close by, were attacked, and died. From this moment the disease spread to all the houses in the vicinity of the vessel, which was evidently the source of the infection.

It would require more than an ordinary degree of faith in the doctrine of importation to attribute this outbreak of the fever, at the time of the occurrence, to intercourse with the passengers and crew of the ill-fated vessel. Two months and a half had elapsed since they left the *Havana*, and they had all arrived in good health. Independently of this, during the prevalence of

¹ Second Report on Quarantine. Yellow Fever. Lond. 1852.

the disease, nothing transpired capable of proving its contagious character. It follows, from the account we possess of this visitation, that the disease did not extend beyond the houses opposite the ship; that when individuals were attacked, whose habitations were at a distance, it was occasioned by their having remained for some time within the space to which the malaria from the ship appears to have been limited; that the heat was excessive, the thermometer reaching to 96°, and the course of the wind favoured the conveyance of the effluvia from the ship; that many individuals, evading the sanitary regulations, passed out without certificates of health, and took with them clothes, even from the houses where people had died; and that neither these individuals, nor the sick that were conveyed to different parts, nor the effects that were carried out, communicated the disease to the surrounding country or elsewhere. Nor can we attribute it to the cargo, as it had not infected any one on board who had assisted in unloading the vessel, and had, besides, been removed before the commencement of the fever. More rational is it to refer the cause to the foul condition of the vessel itself—a condition not attributable to the miasma with which the hold was impregnated, and resulting from the cargo and crew, since the former were innocuous, and the latter, had they been infected, were not located in the hold, but in the cabin and steerage, which were not the seat of the infection; but to the state of the timber, &c.; for the disease did not manifest itself until the sides of the vessel had been opened and the decayed wood exposed. The custom-house officer, it is true, died before this operation was performed; but from the nature of his duties he was obliged to visit every part of the vessel, and was therefore exposed to the direct action of the deleterious effluvia issuing from the interior of the vessel, even before the decayed timber had been fairly uncovered.¹

The following case, the last I shall adduce, affords a strong illustration of the sudden development of the disease on board of ships while at sea. It has often been briefly referred to, but deserves a more particular notice.

In the year 1802 (12 Floreal, an. 10), a flotilla, filled with French troops, sailed from Tarentum for the Island of St. Domingo.² The vessels consisted of small Neapolitan polaccas—under the escort of a frigate—each of which, though only intended for the accommodation of at most one hundred men, received one hundred and fifty (p. 7). Encountering, soon after leaving the port, a severe storm, the vessels were dispersed, and sought shelter where best they could. They reassembled at Leghorn, and thence proceeded to Cadiz, there to join another division of troops that were to form part of the expedition. Stopping again at Carthage, to take in proper provisions and to refit, the expedition set sail for St. Domingo—the troops being now transferred to eight

¹ Arruti *Tratado de la Febre Amarilla*, &c.; p. 1-70. Notice topogr. du Port du Passage où la F. J. a régné pendant les mois d'Août et Sept. 1823, par E. L. Jourdain. Broussais's *Journal* iv. 505. Abstracts of this in *Med. Rev. of Phila.* i. 260. *Journal Générale*, 86, pp. 225, 231. Audouard, *Relation Hist. de la F. J. qui régné en Port du Passage*, 1823. *Rev. Méd.* Août, 1824. Chervin, *Examen*, &c. p. 31, &c.

² Béguerie *Histoire de la Fièvre qui a régné sur la Flotille Française, sortie du Port de Tarante*, p. 5. Montpellier. 1806.

vessels freighted for that purpose. Of these vessels, one was set apart for the accommodation of the sick.

The spring had been cold and wet. Summer came on suddenly, and was characterized, during the months of June, July, and August by intense heat (p. 10). Soon after the departure of the vessels from Carthage, fever broke out on board, and continued to prevail in some of the ships till their arrival at Cape Haytien—spreading more extensively and acquiring greater malignancy as they approached the tropics and were exposed to a higher temperature. The disease, without doubt, consisted of one of the forms of true yellow fever; but exhibited, especially at first, a mild character. At the time of arrival, the yellow fever, in all its purity, was prevailing among the troops at St. Domingo, and by comparing the symptoms presented by the cases on board with those noticed ashore, the surgeon of the squadron was enabled to convince himself of the identity of the two diseases (p. 21).

In this instance, there cannot be the remotest reasons for referring the disease to any other than a local origin. Nothing is said of the soldiers having imbibed the cause of it at Leghorn, Cadiz, or Carthage, in neither of which places, indeed, it existed that year. Dr. Beguerie lays some stress on the effects of bad regimen, but especially on the excessive heat to which the men were exposed; as also on vicissitudes of temperature and exposure to night air (p. 21); but he likewise attaches much importance to the morbid exhalations arising from the accumulation of the troops and the decomposition of animal and vegetable substances contained in the vessels (pp. 21, 24, 36, 88). It may not be improper to add that the disease manifested no contagious property (p. 73).

Enough has now been said to show clearly and undeniably that the true yellow fever has often been generated on board of ships under circumstances which forbid the idea of its having been the effect of contagious germs therein introduced, or of malarial effluvia wafted from contaminated vessels lying in the vicinity, or from infected localities on shore. It is easy to understand, that such examples of development must prove not a little embarrassing and annoying to thorough contagionists. A perusal of their writings will show that, with a few honourable exceptions, they deny the production of the fever anywhere on land, through the agency of local sources of infection, and necessarily feel no disposition to make an exception in favour of such sources when located in ships; or, if they admit the possibility of such a mode of origin, they limit the sphere of its occurrence within comparatively narrow bounds, rejecting, as unfounded and even absurd, the idea of including within these any section of the temperate zone. It cannot be matter of astonishment, therefore, that, entertaining such views, they should, as already seen, have denied *in toto* the truth of the statements made on the subject before us, or, when this proved impossible, endeavoured to explain them away on principles harmonizing with their opinion respecting the etiology and mode of propagation of the disease.

Be this, however, as it may, the facts presented in the preceding pages, and which have been collected from sources entitled to full confidence, are of

a nature to overcome effectually, all the objections raised against the reality of the generation of the yellow-fever poison on shipboard. They furnish us the means of repelling the assertion sometimes hazarded by less exclusive partisans, that if the disease truly arises spontaneously in ships, it does so only in such parts of tropical climates where it is endemic; that there it is, perhaps, the effect of atmospheric influences—seldom, if ever, of local sources of infectious effluvia; that when perchance it appears in vessels lying in ports situated in temperate regions, those vessels have arrived from such localities, or from places infected by communication with them, and that the fever has been derived directly or indirectly from tropical climates, and not from any cause eliminated on board. All this is refuted by the fact that in some of the cases cited, the fever has broken out in ports situated in temperate regions under circumstances incompatible with the idea of importation, and even in vessels coming from parts of Europe where the yellow fever has never existed; that in others the fever has made its appearance at sea before the vessels had reached tropical latitudes, or in vessels proceeding from one port situated in temperate regions to another of the same kind; and that, in not a few, the connection between the appearance of the fever and the existence of materials which elsewhere give rise when in a state of decomposition to febrile effluvia, is too apparent to be doubted. Some of the facts adduced equally disprove the assertion that the development contended for takes place only, or principally, in vessels containing individuals who had recently visited sickly ports, or had there been affected with the fever; or, as it is at times maintained, that it occurs only in vessels lying within the influence of infected ports in tropical regions, and is to be referred to such influences; for in some of the instances described or referred to, the effect took place in vessels—as the *Hornet*, *Blossom*, *Eclair*, *General Greene*, *Delaware*, *Levant*, *Mary*, *Columbia*, *Antelope*, *Kent*, *Circé*, that had sailed from, or were lying in ports where the fever, if it ever prevailed, did not exist at the time, or had not done so for some, or even many years before, and which, therefore, were not likely to contain any individual who had recently, if ever, passed through the disease, or who could in any contingency have derived the latter from morbid effluvia emanating from surrounding objects. Not less opposed to the assertions in question, are the cases of the *Fabricius*, *Thracian*, *Lively*, the French flotilla from *Tarentum*, &c., in which the fever appeared at sea, during a cruise or passage, and far from any contaminated spot; as well as those of the *Pique*, *Nancy*, *Scout*, *Diligente*, *Rattlesnake*, *Ferret*, *General Greene*, *Macedonia*, *Pyramus*, *Nyaden*, *Lively*, *Pylades*, *Bedford*, *Kent*, *Pilot*, and *Seringapatam*, in which, while those vessels were severely visited by the fevers, others situated close by in port, or at sea, or on the same cruising-ground, remained uninjured. In the first of this category of cases the cause of infection could not have been derived from surrounding objects, and must have been located in some parts of the vessels themselves; in the other, the complete escape of other ships exposed to the same influences from the shore, and the restriction

of the disease to one, is, to say the least, a strong reason for regarding it as an intrinsic product of the latter itself or its contents, and not of effluvia derived from an extrinsic source, at the place where it was lying, or whence it had just sailed.

The foregoing statements furnish us, moreover, with materials to disprove the idea, sometimes entertained, that the disease, when it breaks out on board of ships without its being traced to an immediate exposure to contagious effluvia, will be found to do so very usually, if not always, in vessels in which it had existed at some antecedent period sporadically or epidemically; and that hence it is simply the effect of a revivification of germs left there at the time of the preceding visitation. Such assertions receive no support from the history of the very large majority of instances mentioned, for in them the fever made its appearance unexpectedly in vessels in which it had never existed before; while in the few which had been infected at some antecedent period, the occurrence was of too ancient a date to justify the supposition that the development of the disease could in any possibility be due to the cause assigned. Such a supposition would imply the admission that the germs of that form of poison giving rise to the yellow fever can remain for months or years in a state of latency in the human system or in surrounding objects, and be brought at last into action through the agency of some exciting cause. Need I remark that, notwithstanding all that has been said on the subject by Currie, Bally, Pariset, Arejula, and others, the existence of such a power of retention has never been verified on land, even under circumstances the most favourable to such a result? And surely, if it does not there manifest itself, it would be difficult to point out the most distant reason why it should do so on board of ships.

But even were there no other cause for disbelieving the extrinsic and contagious origin of the fever in the instances before us by the revivification of germs or otherwise, the opinion of that origin may properly be rejected on the ground that the disease produced on board has not been found to be communicated on shore. It will be found on examination that individuals affected in the Rattlesnake, the Euryale, the Regalia, the Peacock, the Pyramus, the Levant, the Vestal, the Bedford, and the Blossom, were landed and received into hospital wards in various places, and, that notwithstanding the freest intercourse was allowed, the disease was not in a single instance communicated to those around.¹ Nor need we hesitate to affirm that when the various instances

¹ "At Barbadoes," says Dr. Ferguson, "our hospitals of late years have been in a regular course of importation of the yellow fever from the navy; but not even inoculation has been able to produce the disease upon any member of the hospital corps, by whom, I may truly say, that the sick have been received with open arms; for the anti-social doctrines of ideal contagion are not preached among us here to the prejudice of duty and humanity."

Another respectable authority, Dr. Magrath, principal medical officer of the Public Hospital in Kingston, Jamaica, remarks in relation to this subject: "Yellow Fever has

of contagious communication alleged to have proceeded from such contaminated vessels in this country and elsewhere are carefully scrutinized, they are found destitute of proof, and are more readily explained on other principles.

Even the case of the *Eclair*, upon which so much stress has been laid by the advocates of importation, loses, when examined attentively, the importance it has acquired. While those who went on board took the disease with almost unerring certainty, it remains yet to be proved that those affected communicated the infection on shore. So, as Dr. Wilson, a competent authority on such matters, remarks, "it happens, if not universally, almost universally. Nearly every man who joins a ship in such a condition has the prevalent disease sooner or later; but no number of persons taken from such a ship, labouring under the disease in any stage, or in any force, and placed in a situation where the disease does not exist, though in a mass of healthy people, can excite it in a single instance."¹

We also see that exposure to the effluvia issuing from the hold during the cleansing and purifying process in ships, heretofore uncontaminated or very long free from the fever, and after the crew had been dismissed, and no one was left on board to communicate disease, has often been, not in tropical and fever regions only, but in temperate climates also, the cause of the most concentrated and fatal form of malady. In a word, the facts that have been adduced establish, beyond the possibility of a denial, the reality of the development of the yellow fever on shipboard, from the operation of causes existing therein, and unconnected with any contagious or infectious germs introduced from without.

When we bear in mind the peculiar nature of the localities in which the yellow fever usually appears, and the almost constant connection observed between the development and prevalence of the disease, and the existence and particular condition, in those localities, of certain materials, animal or vegetable, or both combined, and at the same time revert to the particular condition

not for several years prevailed as an epidemic in Kingston, but occasionally we receive patients suffering from it into the Public Hospital. In 1848, the crew of a vessel that had a few months previously been employed in carrying guano suffered most severely; and in 1849, the persons on board two coal ships, which, after discharging their cargo took in some impure ballast, were attacked with yellow fever in its most virulent form, whilst all the other vessels in the harbour remained nearly free from the disease. The sick from those ships were placed amongst the other patients in the hospital."

"Dr. Magrath informs me," reports Dr. Melroy, "that nearly twenty cases of aggravated yellow fever were received from those two vessels (the holds of which were found to be in the foulest state imaginable) into the hospital, and a very large proportion of them proved fatal. None of the other inmates or of the attendants of the hospital were affected. Moreover, there was no prevalence of the disease on shore at the time."—*Second Report of the General Board of Health on Quarantine in 1852*, p. 88.

¹ Wilson, Statistical Report, p. 110.

of the vessels in which the disease made its appearance, as well as to the thermometrical and other influences existing at the time, there can be no valid reason for refusing to admit the reality of such developments; while, at the same time, we discover a satisfactory explanation of the manner in which they are brought about. As the disease requires invariably for its production a long continuance of high atmospheric heat, and as it is on that account most generally encountered in tropical, or during the hot season of temperate climates, we can readily understand why it more frequently occurs on board of ships in the former, where, besides, these usually contain materials susceptible of decomposition, and which, when acted upon by the high temperature they there encounter, are soon productive of noxious exhalations. In merchant and other vessels engaged in the West India, South American, or African trades, the cargoes consist almost exclusively of articles susceptible of fermentation or putrefaction; while the same vessels, as well as ships of war, are apt to be ballasted with materials alike liable to those injurious changes, and which, together with portions of articles provided for food, chips of wood, shavings, and dirt of all kinds that inevitably find their way—sometimes in unaccountable quantity, into the hold of vessels, where, meeting with more or less moisture, supplied by leakage, or the water used for purposes of cleansing or purification, or the drippings of the casks, or other sources, they form a mass which, under the influence of intense heat and a still atmosphere, become the source of concentrated miasmata. By one well versed in all matters of the kind, we are reminded that it is not always possible to account for the dirt and rubbish which may be found in the bottom of a ship.

“Fragments of wood, vegetable substances, and dirt of all kinds, however, gravitate by the formation of the vessel towards the keelson or limbers; where, by the heat of the climate and the action of the salt-water, they rapidly decay, and form a blackish mud, not dissimilar to that observed among the roots of mangrove thickets on the banks of the rivers within the influence of the tides; it sometimes even acquires a consistence sufficient to block up the passage of the limbers. In small vessels, with a flying deck, there is less difficulty in accounting for the presence of foreign matters in the hold; dust, fluids of various kinds, the sweepings and scrapings of the decks, and a thousand other things, will find their way there, notwithstanding the greatest care, both on the part of the officers and men, although the latter, nevertheless, are frequently wilfully careless in this matter.”¹ In steamships the difficulty is still greater, in consequence of the boilers and engines occupying a large portion of the floor of the hold, which cannot be got at.² All this filth, in the concentrated state mentioned, may and often does exist in vessels, although the decks and other parts apparent to the eye are clean. In them the cause of offence, though hidden, is not less real than in vessels differently conditioned, and proves often detrimental to health before it is suspected to exist. Of course; all foul ships are not necessarily unhealthy; but those that escape are the exceptions.³

¹ Bryson, p. 222.² Ibid. p. 223.³ Ibid. p. 223.

Nor is it less worthy of remark that the very timber of which vessels are constructed, especially when green or not perfectly seasoned, may be, and has not unfrequently been, when acted upon by the high temperature of tropical climates, the source of noxious effluvia. At any rate, such a condition of vessels has not unfrequently been associated, in hot climates, with the development of the most malignant form of the disease; and, judging from what has been noticed on land of the effect of exhalations from kindred sources of infection, or at sea, from the stowage of damp green wood, we cannot err greatly in attributing the mischief, in the instances in question, to the decomposition of the ship's timbers. On this subject, the facts related by Dickson, Wilson, Rochoux, and others, leave no doubt, or, at any rate, merit serious consideration. The unhealthiness of ships built of green timber has always been noticed, and we have seen that the epidemic on board the *Regalia* and *Messenger* was evidently traced to a quantity of green wood stowed in the holds of those vessels.

We all know, also, how offensive the bilge-water becomes from admixture with the filth of the vessel; or the great tendency that the water, which finds its way by leakage or otherwise into the hold, has of being decomposed; sometimes owing to its original impure state, at others, to its combination with the fresh-water proceeding from the drippings of the casks, &c. It is not to be denied that such a condition of the bilge-water is not necessarily connected with the appearance of the disease on board of ships; cases having been adduced in which the foulest and most offensive water has proved innocuous; while disease has raged where the odour was hardly, if at all, perceptible.¹ But such cases are not frequently encountered; and, when so, find their prototypes on land, where the appearance of malarial fevers is sometimes connected with an apparently pure condition of water, partially covering marshy swamps, or with an absence of mud or filth. More generally the reverse takes place, and, even were this not the case, the appearance of the disease may still be due to internal miasmata issuing from other sources of infection; or, again, the water, though completely or almost inodorous, clear, and apparently pure, may nevertheless contain in solution those particles of poisonous matter which produces the fever.

May we not adduce, as a further proof of the local origin of the disease from sources of miasmal infection, the example of those vessels in which the spread of the disease has been arrested, even in tropical climates, or during the hot season of temperate regions, by a resort to a thorough process of expurgation? We have seen that the fever was arrested in the *Dart*, *Pyramus*, *Regalia*, and *Palinure*. In the case of the *Trinidad* at Barbadoes, mentioned by Dr. James Johnson (164, 1st ed.), the fever disappeared as soon as the hold was washed and cleaned, the dirt, filth, and stagnant water removed,

¹ Bryson, p. 224.

and scuttles cut for better ventilation. Some officers, by the early adoption of proper hygienic measures, particularly of those calculated to insure cleanliness, and prevent the accumulation of sources of impure exhalations, have succeeded in guarding their vessels, under the most unpromising circumstances, against the development of fever. While other vessels were sorely visited by the disease, Capt. Smith, of the British Navy, never had it in those under his command during long service in the Mediterranean. Like him, many others have preserved their crews by having "the holds of their vessels washed out daily by means of plugs till the water came out perfectly clear, so that an accumulation of filth could not take place."¹

Whether the infection proceed from the effluvia issuing from the bilgewater, the timber of the ship, the filth of the hold, or the cargo, the existence of the cause within the precincts of the ship, particularly in the hold, is rendered evident not only by the circumstances already mentioned, but by the limited space and the particular spots to which it is confined at the outset, or throughout the whole extent of the epidemic. The disease usually, or very frequently, makes its appearance, and is more severe in the vicinity of the pumps and main hatchway. This is exemplified by the occurrences on board of the *General Greene*, the *Macedonia*, the *Rattlesnake*, the *Rainbow*, the *Force*, the *Skipjact*, the *Ferret*, the *Scylla*, the *Lively*, the *Isis*,² and is nothing more than what might be expected; for there the keel is most dependent, the water draining from other parts is accumulated, and the heat is most intense. Thus the first cases, and the largest rate of mortality, have, in many instances, been found to occur in the berths of the midshipmen and marines, which, in English frigates, are placed on each side of the pumps and main hatchway. By Dr. Wilson we are told, that the subsequent progress of the disease depends on the trim of the vessel, and the inclination of the keel from the horizontal position; the fever spreading in the most dependent parts. In almost all cases, the disease prevails more, and the risk of infection is greater, in the lower than in the upper deck. It is sometimes confined to one end, or one side of the vessel.

From these facts, and the appearance of the disease under circumstances which preclude the possibility of referring it to the operation of external agencies, or the introduction of contagious germs, we arrive at the conclusion, already so often mentioned, that its development on board is often due to causes existing in the vessel itself, and brought into action by the long-continued heat of tropical regions, or the equally high temperature of the summer season of temperate ones. Nor is this all. As the sources of noxious effluvia, to which the disease is then evidently due, are identical in nature with those with which the development of the fever on land during the hot season of temperate regions is usually associated, we arrive at the no less

¹ Lond. Med. Gaz. ix. p. 890.

² Wilson's Statistics, p. 110.

natural inference that such developments are there due to these effluvia, and not to importation from abroad.

Whether such an importation can be admitted as within the bounds of possibility, need not be made the subject of inquiry here. I shall dismiss it, therefore, with the remark that, so far as I have been able to ascertain, there is no reason to regard the disease as possessing, under any circumstances, a contagious character; and that, consequently, its development can in no case be ascribed to the arrival of individuals labouring under it, or to the contagious germs they have left in ships, or which the latter have imbibed in sickly ports. Very different is the case with vessels in which the disease has been developed spontaneously, and of which the cargo, or timber, bilge-water, filth, &c., constitutes the source of infection; for by these the disease, or its cause, may be, and has been, introduced into healthy places, and communicated to those who have gone on board, or approached sufficiently near to be placed under the influence of the effluvia issuing from them. But such an introduction differs materially in its consequences from the former; for the disease resulting from it will cease when the imported source of infection has been removed; while in the other case it is perpetuated by passing from one individual to another, and spreads long after the removal of the vessel to which it owes its origin. Hence it is the prevention of the admission of vessels so conditioned into healthy ports, and of the exposure to the effluvia issuing from noxious matter, contained or imported in foul vessels, that should constitute the principal object of quarantine laws, and not the guarding against the introduction of disease by contagion; for there is no cause, as long ago urged by a sensible writer, for detaining a ship on account of the danger of yellow fever, which is itself in a pure state, from whatever port she may have sailed, or however sickly that port may have been. On the other hand, no ship in a foul or offensive condition, or whose cargo is in a putrid state, however healthy the port whence she sailed, or the persons on board may be, should be permitted to enter the town, until it has been thoroughly cleaned and purified, or has passed through the ordeal of frosty weather. But in no case should the passengers and crew, whether healthy or not, and whatever be the danger of their being attacked after leaving the ship, be detained in quarantine; for there is no fear of their transmitting the danger to others, and of the disease being perpetuated by them.¹

PHILADA. Jan. 1853.

¹ N. Am. R. 10.

ART. IV.—*Extracts from the Records of the Boston Society for Medical Improvement.* By WM. W. MORLAND, M. D., Secretary.

September 27, and October 11.—*Cases of Arrest of Development, Blemishes, etc., in Infants, attributed to Strong Mental Action in the Mother, while Pregnant; Disagreeable Sight; Sudden Shock, &c.; Discussion upon the Question whether such Action of the Mind be ever a Cause of such observed Results.*

CASE I. *Arrest of Development attributed by the Mother to a Fright during Pregnancy.*—Dr. STORER reported the case. Several months since, a female patient of Dr. S.'s expressed some anxiety respecting her sister, who expected shortly to be confined, and who could not be persuaded that she would not have a deformed child. Three or four weeks after her marriage, she was much affected at seeing a hen injured by a stone thrown by a boy—the stone broke one of its legs, and removed the lower portion. She was exceedingly troubled at the time, and as her pregnancy advanced, continually dwelt upon the subject, insisting that her child when born would be found to be deformed. Her friends at last began to feel some concern as to the result, and hence the reason of Dr. S. being consulted. A few weeks afterward, Dr. S. heard from his patient that her sister had been confined, and that one foot was wanting; that, immediately after her delivery, the mother asked to see her child; one foot was shown her as being natural, and an effort made to divert her attention from the child; but she could not be pacified until she saw the other limb, continually insisting that she knew it was deformed. Dr. S., being very anxious to see the child, requested that he might know when it should be brought to this city.

Since the last meeting of the Society, he has had an opportunity to examine it. The child, perfectly well formed in other respects, exhibited upon one of the lower extremities, simply a heel and the rudiments of the five toes, at the extremities of which were placed microscopic nails. Dr. S. observed that he was led to refer to this case from the peculiarities of the patient's conduct previous to her confinement. It was not an uncommon circumstance for a mother, after the birth of a deformed child, to account at once for the defect by something which had occurred during her pregnancy; but he believed it to be very rare for a patient to dwell upon the subject for months previous to her confinement, and immediately upon her delivery insist upon seeing her offspring to prove her conviction.

Dr. BIGELOW, Sen., remarked that very many of these cases are referable to afterthought of the mother. Women are often anxious in regard to the possible deformities of their offspring, and there are few pregnant women who escape seeing some peculiar and even disagreeable sight or objects during their gestation; any marks observed would, therefore, be coincidental, *by the rule of chances*: in ninety-nine out of a hundred pregnant females, no untoward results would be observed. Dr. B. does not believe it possible that an arrest of development can arise from the action of the imagination of the mother, or from the effect of sudden disagreeable impression on her mind. It is not infrequent that mothers inquire *whether their child be perfect*; at all events, the frequency of deformities after any shocking sight is the test of the truth of the existence of such cause for deformity. Dr. B. believes that if one hundred pregnant women were to be exposed to the action of such supposed causes, or

should experience any of the strong and peculiar "longings" of pregnancy, no blemish would be thereby produced in the children.

Dr. CABOT referred to the fact that, during the siege of Antwerp, there were very many *stillborn*, and a large proportion of *deformed* children.

Dr. DURKEE asked, if this theory of the influence of mental impressions on the pregnant female does not find support in certain analogies observed among animals? He referred to Old Testament narration (*Genesis*, chap. xxx.), and added that remarkably similar facts may be observed at the present day in the breeding of animals.

Dr. JACKSON said that very likely there might not be one in a thousand, exposed as suggested by Dr. BIGELOW, in whom unfortunate results would follow; *all* are not *equally susceptible* of such influences—some not at *all* so: the *special* cases, however, are not to be explained or ridiculed away; there is enough of plausibility, if nothing more, in the view he sustains of the matter, to render women cautious of needless exposure to unpleasant sights in the *early months* of pregnancy.

Dr. J. added that, from the cases he had seen, or heard of upon good authority, he was inclined to believe that a malformation in the *fœtus* may be induced by an external cause operating upon the mind of the mother during her pregnancy, and, further, that the malformation may bear to the cause some relation or resemblance. This last has always been a popular notion; but is regarded, on the other hand, by the scientific, as perfectly absurd; the presumed cause operating upon the mother at a period of pregnancy when the *fœtus* must be too far developed, it is said, for any such malformations as have been referred to, to be produced. There is, moreover, no nervous communication between the mother and the *fœtus*. The number of negative facts is numerous beyond account; of cases, that is, where a sufficient cause, according to the above hypothesis, existed for malformation, and yet none occurred. No possible explanation can be offered for the production of a malformation by the presumed cause; nor will it be possible, until we know much more than we do of the obscure subject of the physiology of the *fœtus*. The resemblance between the malformation and the cause, it is said, is a mere coincidence; but, upon the common doctrine of chances, the coincidence is too remarkable to be explained away so readily, and, if one case is suggestive, a second adds very great weight, and a third is almost or quite conclusive. M. St. Hilaire (*Anomalies de l'Organisation*) believes that some monstrosities, the anencephalous for instance, owe their being, in some cases, to the operation of a strong moral cause upon the mother; but he does not believe in any resemblance in the particular malformation to the exciting cause, and for the reason above mentioned. It would have been well had he stated at what period of pregnancy the mothers, in his cases, were subjected to the causes that led to their monstrous births. Another remark often made is that pregnant women do not predict the malformation, but, when it is discovered, look back for some cause to which they can refer it. This might be questioned; but, allowing that it is so, and even that they had ceased to think of the assigned cause, it does not follow that it had not operated efficiently at the time; the impression was made upon the mind of the mother, and through it upon the *fœtus*; the one was soon effaced; the other remained. Much would depend upon the character of the exciting cause, and much also, as he had before remarked, upon the *susceptibility* of the individual to the receiving and the retaining of impressions. Dr. J. then reported the following cases:—

1. Several years ago, he saw a young lady, about thirteen years of age, of rather a small and delicate figure, and whose middle finger upon one hand

was fully equal in size to that of a man's; the corresponding metacarpal bone being also decidedly enlarged, and even the forearm somewhat so. The finger was itself well formed, as in some other cases of similar malformation that have been observed here. The hand also was otherwise well formed.

The mother of this young lady, during her pregnancy, was obliged for a long time to dress a felon or whitlow for an old uncle, the finger affected corresponding to the one that is malformed in the case of her daughter; and the operation was always disagreeable to her, as she was a woman of a particularly nervous temperament.

2. In November, 1846, Dr. J. saw an infant with an extensive blood-mark, as it may be called, upon one of the upper extremities. The mother, whom he has attended for several years, and knows to be a woman of very susceptible feelings, gave the following statement: When two and a half to three months pregnant, though not at the time aware of her situation, she had been out of town for the afternoon, when, on her return, as the cars entered the depot, she saw a man who had been recently killed. He was lying upon his face, with his head turned to one side, the sleeve of his coat torn entirely off, the whole upper extremity exposed and more or less bloody, and so twisted, as she supposed from dislocation at the shoulder, that the hand lay upon the upper part of the back. At this sight she nearly fainted, and probably would have entirely, if she had not had two of her children with her. For at least a month afterwards she was decidedly ill; and during the remainder of her pregnancy she could not banish the thought from her mind; she also felt that there would be great danger in regard to the child in utero, though she never expressed her anxiety upon this point to any one. The extent and degree of the discoloration of the skin were not fully recorded by Dr. J. at the time; but, having recently seen the mother, she informs him (for the child has since died) that it extended from the back of the hand and towards the thumb, where it was most marked, upwards along the extremity to the shoulder, and even somewhat upon the neck. It was not equally marked throughout, being in some parts more or less continuous, and in others simply spotted or dotted. Her other children she has always dressed in short sleeves; but this child's arms she covered, on account of the marked deformity; and, as she says, if it had lived, it could never have worn a low-necked dress. The child itself, moreover, was so sensible of the mark that it would occasionally be seen endeavouring to wipe it off. The discoloured arm in the child corresponded, as to the side affected, with the one that was injured in the man.

3. Dr. Z. B. ADAMS related to Dr. J., several years ago, the following case: He attended a woman in labour, and the child was found to have one of the forearms terminating in a conical stump just above the wrist. During her pregnancy she attended for several weeks upon her brother who had had his hand torn off by machinery, and the forearm afterwards amputated; the injury being upon the same side as the malformation in the child.

4. Case reported by the late Dr. DOANE, of this city. The mother of several blind children was holding one of them in her lap, when it put its finger into one of her ear-rings, drew it down forcibly, and tore it through the flesh. She was pregnant at the time; and when her child was born, it had a fissure in the ear corresponding to the laceration in its mother's.

At the next meeting, Dr. STORER said he had met with reports of two cases since the last meeting, which tended to confirm the opinion at that time advanced, that any remarkable sensation sustained by the mother during her early pregnancy, might produce an effect more or less well marked upon the fœtus in utero—that this effect need not necessarily partake of the character

of the exciting cause—but that, should the mother be so far influenced as to receive a decided shock upon her system, it might be followed by some abnormal condition of her child—arrest in development or some peculiar malformation. The following cases he had observed in the “Proceedings of the Medical Association of the State of Alabama,” for Dec. 1850.

“Dr. R. LEE FEARN related the following very remarkable particulars of a case, where the impressions received by a mother during pregnancy, affected her child in utero. A gentleman, whilst shooting, shot through the metacarpal bone of his index finger. The wound was a bad one, and piece after piece of the bone came away. A few months after the accident here mentioned, and in due season, his wife bore him a child perfectly formed in all respects. When about four months advanced in her second pregnancy, an operation was deemed necessary to remove the last remaining portion of bone in her husband’s finger. She witnessed the operation, and was much shocked and alarmed at the sight. When her child was born, it was found to be deficient in this very bone, though in all other particulars it was a well-formed child. The Doctor thought this was by no means the result of chance, but a very conclusive instance of cause and effect.

“Dr. DOSSEY remarked, that the relation of this case called to his mind a similar instance:—

“Dr. G—— was thrown from his horse and broke his leg, midway between the ankle and knee. His wife was about five months advanced in pregnancy. When the child of which she was pregnant was born, it had on the leg corresponding with the injured limb of the father, and at precisely the same spot, the appearance of a fracture of the limb, and there was also a decided shattering of the leg.”

Dr. STRONG thought that the notion so popularly entertained in reference to this matter is too general not to have *some foundation in truth*. It certainly deserves investigation. He added that the idea of greater liability to these attributed effects, from the causes mentioned, in the *early* part of pregnancy, seemed to him very well founded; perhaps the influencing power, be it the imagination, or what it may, *ceases after a certain period of gestation*; has a *limitation*. Dr. S. also referred to the fact that a *mare* covered by a *quagga* always afterwards, when impregnated by a *stallion*, brought forth *striped colts*.

Dr. CABOT mentioned the statement of M. Donné, of Paris, who declares the above fact, as stated by Dr. Strong, to be constantly observed under the same conditions; he even goes farther, and asserts that one portion of the constitution of one man is propagated, *by another man, from the widow of the first to children by the second*.

Dr. BIGELOW, Sen., asked to what cause we must attribute the imperfections and arrests of development observed in fruits, flowers, and plants. Have *they* imagination? and does it act with this effect upon them?

Dr. B. declared his entire disbelief in any such effects from the attributed causes.

Dr. HAYWARD, Sen., asked whether this action or influence (if it be recognized as efficient) is *imaginative* or purely physical? Dr. H. mentioned a mother, who, while pregnant, suddenly saw one of her children, ill with pneumonia, covered with blood by some accident; the child she was carrying, when born, had a *large red stain* or spot upon its face. Here, imagination could hardly be the cause, for the woman had not thought of, or brooded over, the occurrence, nor had she any apprehension that her infant would be marked.

Dr. HOMANS spoke of an acephalous foetus, the mother of which during

pregnancy had not ever apprehended any marring of her child. Dr. H. not remember, since that case, any other wherein the mothers had *anticip* any monstrosity, although such did occur. These facts he considered w militate with the imagination doctrine, or the idea of effect from strong me impression or shock on the foetus in utero.

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Dr. STRONG asked if any one had seen so strongly marked special cases that of the slitted ear and the enlarged finger narrated by Dr. Jackson?

Dr. HAYWARD, Sen., mentioned two cases of slitted ear; the slit being the portion in which ear-rings are inserted. One individual, when seen Dr. H., was 16 or 17 years of age. The mother did not remember any acci dent or sight possibly causative of such a result.

Dr. WM. T. PARKER related the following case, which occurred in his father's practice in Virginia, many years ago: A lady, three months advanced in pregnancy, saw a pig, driven furiously out of an inclosure by a negro boy, have *its bowels torn out* by the stake of a fence. The lady was greatly shocked, and fainted. Her child, when born, had the entire front of the abdomen covered only by a thin film, and the intestines were visible through it. There was also imperforate anus. The child died not long after birth.

Dr. CHANNING related the case of a lady in Edinburgh, of which he heard while there lately: Her surgeon had been performing the operation for hare-lip, and the lady's attention was drawn to some blood which chanced to remain upon one of his fingers; at her request, he described the operation to her. She was from four to five months gone with child; at birth, *the child was found with hare-lip*. The mother stated that she had been much impressed by the above occurrence and narration.

Dr. C. alluded to the fact that the umbilical cord sometimes performs amputation of foetal limbs.

Dr. COALE said that the agency of mind upon matter cannot be denied. Sometimes the cause and the effect of nervous impressions are greatly disproportionate the one to the other. The action of these impressions on the stomach and bowels is undoubted. Dr. C. mentioned a patient under his care who, during her pregnancy, saw a deformed man, and was greatly affected and troubled at the occurrence. Previous to her confinement, however, the vivid impression subsided, to be renewed during the throes of parturition. She became very apprehensive of possible deformity of the child about to be born, which, however, presented none.

Dr. BIGELOW, Jr., thought the *negative*, as well as the *positive* evidence on this subject should all be weighed; otherwise, *fallacious results* are nearly sure. *Strong numerical evidence* and *many cases* seem to him necessary for a decision; isolated cases are insufficient.

At the meeting holden Nov. 8, Dr. STORER reported that he had, during the last week, delivered a woman of an infant with hare-lip; the mother, the day after confinement, told him that she had been very painfully impressed while visiting, during her own pregnancy, a friend who was dying from phthisis, and who, during her visit, had a severe and sudden attack of hæmoptysis, accompanied by distressing dyspnoea. The pregnant lady was greatly shocked, so much so as to faint; and she subsequently thought frequently of the occurrence, fearing its effects upon the child she carried. This infant was born with a hare-lip of double fissure.

Dr. GOULD mentioned, as a "set-off" case to the above, the following: On last Monday, he attended a woman in labour, who, at the birth of her child, was very anxious that its palate should be examined, she having, early in her pregnancy, seen a person with very disagreeable countenance from leformity of the palate. She had been very unpleasantly affected by the sight, but, notwithstanding her very strong apprehension, no effects are visible upon her child.

The discussion of the subject was not resumed.

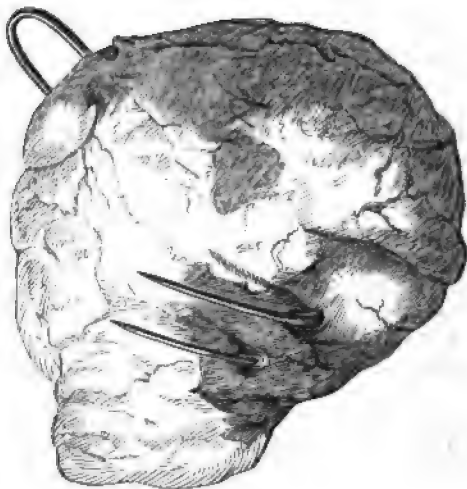
Peculiar Case of Lithotomy; singular Nucleus for, and unusual Size of Calculus.—The specimen was brought by Dr. WM. G. WHEELER, of 'sea, Mass., who performed the operation for its extraction.

STEDMAN exhibited the calculus, and gave the following account of case, furnished by Dr. Wheeler:—

A female, 21 years of age, came under Dr. W.'s care a few months since; she had for a long time suffered severely; all the usual symptoms of stone in the bladder were undeniably present, and, indeed, very marked. A sound being introduced by Dr. W., the presence of a calculus was readily detected. The severity of the local symptoms, and the apparent large size of the stone were the circumstances chiefly engaging attention. The stone seemed immovable, judging by the impression communicated to the sound while examining; the sensation would perhaps convey the idea of the calculus being fixed at certain points. The patient complained occasionally of great pain in the pubic region, as if something sharp pierced the neck of the bladder. Dr. W. was unable to determine the exact size of the calculus. With the hope that it might be sufficiently soft to be crushed, the operation of lithotripsy was attempted. With the assistance of Drs. Stedman, of Boston, and Ingalls, of U. S. Marine Hospital, Chelsea, two trials at crushing the stone were made unsuccessfully; the bladder was contracted and irritable, so as to allow of little or no distension by the injection of fluid; and, moreover, the stone proved to be hard, and of such size and shape that it could not be held or fixed within the grasp of the instruments. The constitutional symptoms, also, which followed each of the above attempts, were severe. Dr. W. feared lest inflammation might supervene, of fatal nature, after the last trial.

Disappointed as to lithotripsy, the operation of lithotomy seemed the only resource. The case was plainly stated to the friends; a preparatory treatment adopted, and the operation urged. On the 1st of October, the patient, having consented, was etherized, and the operation done by Dr. W., assisted by Drs. Stedman and Ingalls. The vagino-vesical method was chosen, as offering apparently the best chance for the patient, on account of the situation of the stone and the contracted condition of the bladder. The patient being placed in the usual position, an incision was carried downwards and backwards upon the groove of the staff; the operator's forefinger, passed through this opening, felt the stone, of large size, and apparently fixed at certain

points. Fears of a sacculated condition of the bladder were suggested; farther exploration by the finger discovered a projecting point, which was at first supposed to be a sharp corner or tubercle of the calculus; but it was finally concluded that it was some foreign body which had served as a nucleus for the calcareous deposit. Efforts to break the stone failed; and, the position of the forceps being changed, one blade was passed over the sharp point alluded to, and after much difficulty, manipulation, and delay, a stone was extracted weighing over two ounces and three-quarters, and there was found passing obliquely *through its centre, a large wire hair-pin*, measuring over three inches and a half in length. This pin, and the direction it had with regard to the incision, together with the size of the calculus, caused the delay and embarrassment in the extraction of the latter. Thus is also explained the seeming immobility of the stone at certain points.



The patient survives the operation, and has done remarkably well, with the exception that a small fistulous opening still remains. The local as well as the constitutional symptoms have been very mild, when compared with those which followed the previous attempts at lithotrity.

The history of the hair-pin is of some interest, as it gives a probable date of the commencement of the formation of the calculus. Since the operation, the patient has stated that the pin *was introduced through the urethra about six years ago*. She never mentioned this fact to any one; preferring to suffer in silence. The foreign body caused some pain and uneasiness soon after its passage within the bladder, but no severe symptoms were manifested until about two years after its introduction, since which time they have gradually increased in severity.

Dr. CHARLES T. JACKSON analyzed the stone, and found it to be composed mainly of phosphate of lime, coloured a little with urate of ammonia. The rough surface which the calculus presents is owing to the action of the instruments during the previous efforts to crush it. The points of the hair-pin were bent down upon the side of the stone (as seen in the engraving) by the blade of the forceps, thus facilitating the extraction of the mass, and also avoiding

laceration of the bladder and adjacent parts, which had suffered so much from continued irritation.

Four months after the operation.—Dr. W.'s patient is out, and visits her friends; she has regained her usual health and strength. The fistula still remains, and has resisted all the usual modes of treatment; sutures have not been tried as yet, but will be attempted if required. A few weeks since, the opening seemed likely to close, as little or no water at one time escaped. From cold, or some other exciting cause, a small abscess formed within or near the neck of the bladder, which, in evacuating its contents, reopened or enlarged the fistula again.

November 8.—Cancer of the Tongue and neighbouring parts.—The following history of the case was received from Dr. J. S. JONES, in whose practice it occurred. The patient was fifty-six years of age; smoked habitually, and used brandy freely, though not addicted to intoxication. One and a half years ago his disease first appeared in the form of a small purple tumour beneath the tongue, and without pain. Six months afterwards, when Dr. J. first saw it, it had increased in size, and was ulcerated; gums of the lower jaw fungous; profuse salivation; great soreness of the parts, and severe pain in the head; this last being a very prominent symptom in the case. At this time he was attending to his business in a grocery store, but for the last three months he was confined principally to the house; the disease showing externally on each side and below the lower jaw, and breaking out into an open sore upon the right side some weeks ago. Constipation was a marked symptom towards the last. Died easily, with cessation of pain and discharge the last few days. Hereditary tendency; a sister was said to have had cancer of the womb, but died of cerebral disease; a paternal aunt died at the age of fifty-six, of cancer in the throat; and a maternal cousin, at the age of twenty-six, of cancer in the mouth.

The diseased parts were exhibited by Dr. JACKSON, who made the dissection. Externally, there protruded below the lower jaw and upon the right side, a solid tumour, one-third or one-half as large as the fist, and ulcerated upon the surface. On dissection, the diseased mass was found to be well defined, extending downwards and backwards to the top of the larynx, laterally to beyond the submaxillary gland, and upwards into the substance of the tongue; in the anterior half of which it appeared in the form of a rounded tumour three-fourths of an inch in diameter. The diseased structure was as soft as the average of encephaloid, and of a faintly yellowish white colour, but not uniformly so; cut surface rough or coarse, and presenting altogether the appearance of a canceroid affection, which it was further shown to be, from a microscopic examination made by Dr. H. J. BIGELOW; no effusion of blood as in encephaloid. Extensive and very foul ulceration beneath the tongue, and above the gum and under lip; yet no sloughing is seen. The submaxillary and two or three neighbouring lymphatic glands were healthy. Teeth in the lower jaw quite loose, but not fallen; the jaw, also, which was removed with the diseased parts, appears quite sound, excepting the absorption of the alveoli. Organs of the thorax and abdomen thoroughly examined, but no trace of cancerous disease found.

Tumour connected with the Sartorius Muscle.—Dr. J. MASON WARREN showed the specimen, which was interesting from the fact that a cancerous tumour of the breast had been removed from the patient five years ago. One of her sisters had also been subjected to an operation on the breast for an encephalo-

pregnancy had not ever apprehended any marring of her child. Dr. H. does not remember, since that case, any other wherein the mothers had *anticipated* any monstrosity, although such did occur. These facts he considered would militate with the imagination doctrine, or the idea of effect from strong mental impression or shock on the fœtus in utero.

Dr. STRONG remarked upon the difference between mental and physical laws in their action on the system. Some individuals have, and some have not, the imagination sufficiently sensitive and impressible for the production of such marked action as has been referred to. The *final question*, however, is whether such results are *ever* produced. If this be proved and conceded, it is sufficient to make the fact a fixed one. *One* instance thus established is enough, and as good as *ten thousand*. The numerical system is valueless upon this question.

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Dr. STRONG asked if any one had seen so strongly marked special cases as that of the slitted ear and the enlarged finger narrated by Dr. Jackson?

Dr. HAYWARD, Sen., mentioned two cases of slitted ear; the slit being in the portion in which ear-rings are inserted. One individual, when seen by Dr. H., was 16 or 17 years of age. The mother did not remember any accident or sight possibly causative of such a result.

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Discussion of the subject was not resumed.

Case of Lithotomy; singular Nucleus for, and unusual Size of

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Dr. W. exhibited the calculus, and gave the following account of the case, as furnished by Dr. Wheeler:—

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left but little doubt as to the existence of a fracture about the hips, notwithstanding the absence of crepitus.

Fusel Oil in Phthisis.—Dr. STORER remarked, that during his last term of four months' attendance at the Massachusetts General Hospital, he had administered the fusel oil in several cases. In only two of these cases, however, had it been taken any length of time. They were now referred to, that the attention of the members of the Society might be directed to the subject; that they might test the value of the oil as a remedial agent. In the cases now noticed, although no perceptible change had been brought about in the physical signs during its use, great relief had been produced of several of the most annoying symptoms.

Susan Lynch, aged thirteen years. Ireland. Entered hospital Sept. 1st. Some dulness observed on percussion over right scapula; well-marked sub-mucous râle; bronchophony; dulness on percussion under right clavicle; crackling, and pectoriloquy.

Ordered fusel oil, three drops in a drachm of wine, to be given three times daily.

Oct. 27. Cough lessened; weighs ten pounds more than upon entrance.

Ann Ferguson, aged twenty-two years; domestic; born in Ireland. No hereditary predisposition to disease; well until three and a half years before entering hospital, Aug. 13, 1852. After a day of hard work and exposure, took cold, and has suffered from cough ever since. Had hæmoptysis two and a half years ago, very slight; and again, about one week since, raising a few mouthfuls. Cough now most urgent in mornings. Has chills, heats, and night-sweats; has lost flesh since last spring; expectorates thick yellow matter.

Aug. 13. Dulness on percussion beneath right scapula, with increased resonance of voice and muco-crepitous râle. Also muco-crepitous râle and resonance of voice below right clavicle; expectorates a thick muco-purulent matter, a portion of which is slightly tinged with blood; nails adunquæ; weighs 102 pounds.

Ordered fusel oil, five drops in a drachm of wine, three times daily, immediately after each meal.

Sept. 2. Cough has diminished since taking oil; is much more comfortable; experiences no inconvenience from cough.

Oct. 8. Weighed yesterday 109 pounds, having gained seven pounds since entrance.

Dr. C. E. WARE reported a gain of ten pounds of flesh in a patient, in eight weeks, under the use of *palliatives* merely; the case being one of phthisis, and aggravated also. In three cases in which Dr. W. had used the fusel oil, it was borne well as far as the dose of eight drops; there was no perceptible effect from its use; death took place in each of the cases. Few patients can bear large doses, in Dr. W.'s experience; he now has one who takes fifty drops, *ter die*; and another who takes thirty drops as often; he has never observed pain in the bowels from the use of this medicine.

Dr. GRAY asked if Dr. Storer's patients at the hospital were *not better fed and cared for*, while there, than previously; and if this should not enter somewhat into the case as an element in the causation of increase of flesh, &c.?

Dr. MINOT, who had charge of one of the above patients, previously to his entrance at the hospital, said that his *cleanliness* was vastly improved by the change; also, that at his home, the *ventilation* was excessively bad; his food had, probably, always been sufficient.

Dr. GRAY said he had tried the fusel oil in one instance, but it proved so disgusting to the patient that it was discontinued.

Dr. HAYWARD, Sen., thought that Dr. Storer's cases must be received with a degree of caution; the change in comfort and nutrition the patients experienced at the hospital is certainly an element of importance in the treatment. To test any medicine fairly, the patients must be kept in the same hygienic condition, continuously, during its trial.

Dr. STORER said he did not wish to avow his faith in the fusel oil; nothing else was taken, however, and it certainly had a marked sedative action.

Dr. JACKSON remarked that phthisical patients do not, usually, improve at the Hospital, but the reverse; he considers the results in Dr. Storer's cases as very striking, under the circumstances.

December 13.—Extensive Suppuration of the Liver.—Dr. JACKSON reported the case, of which he had recently made the dissection. The patient was a healthy young man, 19 years of age, and a clerk in a store in this city. For six weeks he had had what his physician regarded as typhoid fever; the early symptoms being mild, as they so often are in that disease, so that he was not seen during the first week. The disease was, however, particularly characterized by a daily paroxysm of chill, heat, and perspiration; so that the case would rather have been regarded as one of intermittent fever, if the individual had ever been exposed to malaria; the paroxysms varying in severity, but being towards the last more marked, and leaving him then much prostrated. Under the effect of large doses of quinia they were stopped for a time. In regard to the liver, there never were any symptoms that led to a suspicion of its being diseased; no pain existed, and he could lie equally well on either side; no yellowness of the skin; a little vomiting about a week before death, but relieved at once by an emetic of ipecac.; state of bowels not remarkable.

On dissection, the liver was found of medium size, rather flaccid, and of a pale, bluish-red colour externally. Throughout its substance, abscesses were found, varying generally from one to two or three inches in diameter, and occupying altogether one-half or more of the whole organ. The contents were generally a thin, porraceous, somewhat curdy fluid, of a grayish colour, and exceedingly offensive; in many of them there was evidently more or less pus, and a few were filled with pure, thick, yellowish pus. Inner surface whitish, as from a deposit of lymph. These abscesses were quite defined; there was no induration, nor any ecchymosis about them; and the intervening substance of the liver was soft or friable, and of rather a dark red colour. The gall-bladder contained two or three ounces of thin, orange-coloured bile, with considerable grumous, bilious deposit, but no trace of pus.

At the entrance of the vessels into the liver an enlargement and induration was felt; and on cutting this across, a gush of fluid escaped from the vena portæ, similar to that first described as found in the abscesses. This vessel being then further examined, it was found to open into and lose itself in the abscesses soon after its entrance into the organ; inner surface coated with adherent lymph. Superior mesenteric vein traced for an inch after the trunk of the vena portæ had been divided, but nothing unusual was found; and so of the splenic vein, which was examined throughout, though not until some time after the parts had been removed from the body.

Just to the outside of the cæcum, and beneath the peritoneum, was a defined dark gray spot, about three-fourths of an inch in diameter, and without much, if any, induration; and from near this there extended upwards and

inwards towards the spine, a sort of chain of dark gray indurated tissue; on cutting open this last, there was found some white, opaque, rather firm substance, apparently the result of former suppuration. Though not traced anywhere near to the liver, it was suggested that it might have some remote connection with the acute disease in that organ. Veins healthy, so far as observed; as were the lungs, intestines, and other organs of the thorax and abdomen, there being no peritonitis even over the inflamed liver.

Dr. J. remarked upon the extreme rarity, in this part of the country, of suppuration of the liver; upon the latency of the disease; and upon the febrile paroxysms as a constitutional evidence that suppuration was going on somewhere in the system; the temporary arrest of the paroxysms by quinia, under such circumstances, was worthy of note.

Sudden Death. Obscure Symptoms.—Reported by Dr. PUTNAM—A female domestic, 30 years of age, had felt somewhat unwell for a few days, but not enough so to prevent her attending to her usual work. On Saturday, Dec. 11, she washed clothes in the forenoon; in the evening, she was out visiting friends. On going to bed, had a very severe chill, which lasted a long time; this was followed by heat, with extreme distress and pain. The pain rather more severe in the side than elsewhere. During the next day, the distress was lessened, but not entirely removed.

Sunday evening, again in great pain; insisted on getting out of bed, and died in the night, while sitting up and expressing herself as feeling in some degree relieved. She had been somewhat livid during the day, and after death petechiæ appeared over the whole body, varying in size from one-sixteenth of an inch to two inches in diameter. There were no physical signs of thoracic disease.

Dr. JAMES JACKSON remarked that the severity of the symptoms, and sudden and fatal termination of the disease reminded him of the petechial fever which prevailed here many years since.

Pneumonia; rapid progress of the disease.—Dr. STORER reported the case. The patient, a young woman just married, complained of some pain in her chest and very slight cough, on the 6th inst. On the morning of the 7th, she was able to attend to some ironing. Dr. S. was called to see her on the evening of that day. At 7 o'clock, on the morning of the 8th, she died. When Dr. S. saw her she was very feeble, and had severe dyspnoea; being raised in bed for a moment, he detected extreme dulness in her right back, and the expectoration following an attack of coughing was a bloody mucus.

Spinal Disease.—Dr. GOULD reported the fatal termination (Dec. 6) of a case of which he had previously given some account (Aug. 9, 1852). The same train of phenomena continued with increasing intensity. Towards the last, the contractions, which had been mostly confined to the right limb, nearly ceased on that side, and were transferred to the left side. Spasms of the stomach also supervened, by which its contents were ejected with great violence, and without nausea or premonition. This rejection of food, together with intense pain and loss of sleep, rapidly exhausted her. Nothing gave her essential relief except ether. She used chloric ether, three parts with one part chloroform. This was given three or four times every night, and procured half an hour of quiet each time. During the three last days she was almost constantly under its influence, lying quiet, and partially comatose, rather from loss of strength than from any cerebral affection. The limbs were flexed to the utmost at death, and required the force of a man to extend them.

The spinal column having been opened throughout, there were found adhesions between the two surfaces of the arachnoid posteriorly, and also between this and the pia mater, from the middle of the cervical region downwards, and to the extent of about six or eight inches; these were formed by a sort of coarse, loose network of short, delicate, colourless, and yet strong fibres. These adhesions were not observed upon the corresponding anterior portion of the membranes, nor elsewhere; nor was there any other disease of the membranes, excepting a small, pyriform, fibrous tumour, that was found upon the outside of the theca in the cervical region. This last was supposed to contain a cysticercus or some other worm; but none was found, on careful examination. Spinal marrow very thoroughly examined; but nothing found except a slight degree of softening corresponding to the adhesions. Brain rather firm; the left lobe judged to be larger than the right. Some serum beneath the arachnoid, over the convexities; and a little in the cavity; quantity in the ventricles small. The organs of the thorax and abdomen were healthy, excepting a fatty degeneration of the liver, and a small renal calculus.

The friends have always been disposed to attribute the condition of this child to a fall which she had from the nurse's shoulder when three or four weeks old. The situation of the indications of inflammation of the spinal column would tend to support this view. Dr. G. is disposed to lay less stress upon the probable dependence of the symptoms on injury to the cranial contents during parturition than formerly. In some cases, attended with similar phenomena, and following still-birth, the child has presented the breech; in which event, no cerebral injury would be likely to occur. In many cases of difficult labour, too, the head becomes very much distorted, and remains so for many days, without the occurrence of subsequent untoward symptoms. The lesion, therefore, if any, must have arisen from the long period during which the child remained asphyxiated, a condition which occurred to all the children similarly afflicted, of whose cases he has been able to learn the history. Therefore the doubtful expediency of long-protracted efforts at resuscitation still presents itself.

Cancerous Tumour of the Breast.—Dr. J. MASON WARREN related the case and showed the specimen, which had some facts of interest connected with it. The patient was 60 years old, and said that she had continued to have milk in both breasts since the birth of her first child, thirty-seven years ago. One year and a half since, the present tumour appeared under the edge of the right breast. It was now quite movable, a little painful, and was gradually increasing and becoming more attached to the mammary gland. This lady states that her mother died of cancer of the breast, and one of her sisters of a cancerous ulceration of the nose. The tumour was removed with a bit of skin which was slightly adherent to it, and a portion of the gland. It was distinctly cancerous.

Dr. W. reminded the Society of another case he had formerly mentioned of cancerous breast, in which the milk had been retained on that side for twenty years, previous to the development of the tumour.

Compound Fracture into Knee Joint. Amputation.—Dr. J. MASON WARREN showed the specimen. He said that the case was instructive on account of the difficulty in deciding, at the time, whether immediate amputation should be performed. The patient, when first seen at 6 o'clock P. M., had received a compound comminuted fracture of the knee joint, an hour and a half before, from having the fluke of an anchor fall upon him. A wound existed on each

side of the joint, so that the finger could be passed from one side to the other, encountering the broken fragments of bone. The injured part was quite insensible to examination. There was a moderate but constant flow of blood from the wounds. The pulse was 120, irregular, feeble. Patient a little flighty. Stimulants were given every fifteen minutes for two hours, but with no improvement in the pulse, the discharge of blood gradually increasing from the wounds. Under these circumstances, the question which presented was, whether to proceed to immediate amputation, from fear of the patient losing his chance by hemorrhage, or to apply a tourniquet, and wait for an improvement in the symptoms. On consultation with his colleagues at the hospital, Dr. Townsend and Dr. Clark, the latter course was decided upon. On the following morning, the appearances were much the same. Pulse 120, soft. The leaking of venous blood continued. On further consultation, it was thought unsafe to defer longer the removal of the injured part. The patient was therefore etherized, and the amputation practised. The case has gone on since quite favourably.

Foreign Body in the Air-Passages.—Case reported by Dr. M. S. PERRY, in whose practice it occurred.—Mrs. S., aged sixty, was taken quite suddenly with a cough twenty-five years since. It was at the time spasmodic in its character, attended with some soreness across the chest, but no expectoration. In the course of a few weeks she began to expectorate, and from that time till about six months since, the expectoration has been profuse. Her health, which had been previously good, was much impaired; all the functions were disturbed; about six months since, while in the act of coughing, she expelled from the larynx a hard substance, nearly the size of a small white bean, and somewhat similar to it in appearance. From that time to the present, she has had no cough, and her health has much improved.

The foreign body was exhibited, and much resembled the “pearls” sometimes found, loose or attached, within the shell of an oyster.

Large Aneurismal Varix of the External Carotid Artery, and the External Jugular Vein.—Dr. PARKMAN exhibited a plaster cast taken from life, and intended for the Society's Cabinet. The patient, now thirty-five years of age, was accidentally struck, at the age of eleven, within his right ear by a small chisel. The flow of blood was profuse at the time, but was checked by pressure, and the present condition of the parts has been the result, viz., an enlargement of the external jugular vein in its whole length from the front of the ear to the clavicle, to a diameter of about two inches, an enlargement to a less degree of the common and external carotid arteries corresponding in situation, with manifest thickening of their coats, and some slight enlargement of the veins at the temple. In front of the ear opposite to the spot where the communication between the artery and the vein may be supposed to have been made by the wound, there is a very strong pulsation, with loud purring thrill, and here the tissues over the blood are much thinner than elsewhere. Pressure, made deeply over this point, stops the pulsation, and the vein is so emptied as to be very much diminished in size. The accident happened in Glasgow, Scotland, whence the patient came a year since, and he has always been an object of interest, and has been many times examined by the different distinguished surgeons of that city and of Edinburgh, several of whom were anxious to undertake the cure by an operation. There has been no marked change for many years, and the patient did not present himself for advice, but being seen accidentally, the cast was obtained with the above history. He is

not aware of any inconvenience, but of course he is exposed to a fatal hemorrhage if any accidental rupture of the sac should take place. He declined all surgical interference, fully understanding the nature of his case and his consequent liabilities. A member having asked the kind of operation which Dr. P. would prefer in this case, he stated that he inclines to the ligature of the common carotid, rather than to that of the external carotid above and below the opening into the vein, in consequence of the change which must necessarily have taken place in the parts after the lapse of so many years since the injury; and, moreover, if it should be found necessary to perform any second operation, the previous ligature of the carotid would then be found to have been of much assistance.

December 27.—Sequestrum from the Fourth Metacarpal Bone.—The specimen was shown and the case related by Dr. CABOT. J. K., a German hatter, thirty-two years of age, had always been healthy; no other reason for the manifestation of the disease of the bone is apparent than the use of an iron, weighing from ten to fifteen pounds, heated to a high degree: the hand had never received a blow or any sort of injury from external violence: the latter part of last March, the patient first felt a pain in the articulation of the fourth finger and metacarpal bone, and which continued for the most of two days, it then passed off and was not noticed again for ten days, when it returned and gradually grew worse for the space of a month, when a swelling was observed between the fourth and fifth metacarpal bones, but most marked near the fourth—about three-quarters of an inch below the head of the bone. About a week after the appearance of the above swelling, the patient noticed that striking the end of the finger, or a lateral motion of the bone on the metacarpal joint, caused much pain: cold water, with a bandage, and a douche of the same was used; also, certain liniments, &c., until last October; the swelled portion of the hand was then opened upon the outside, and concrete and fluid pus, in large quantity, was discharged, and this discharge has continued ever since, through a fistulous opening. Dr. C. saw the patient first on the 21st of December; a slender probe, passed into the fistulous opening, detected a denuded portion of bone, very small; and in the middle of it, the probe, on making firm pressure, passed through a hole into a cavity within which more rough bone could be felt.

With the idea that possibly the dead portion was but small, and that it might be removed by enlarging the already existing orifice, Dr. C. did this, by means of a dentist's drill introduced into and carried along the fistulous opening; the large sequestrum exhibited to the Society was thus detected, and being found movable, the operator cut down upon the bone directly, and removing a portion of the upper wall thereof, easily extracted the sequestrum, composed of the cancellated structure of the bone, and including nearly the whole of it.

A Mass of Crude Tubercle ejected from the Mouth.—Dr. CHARLES E. WARE reported the case.—A girl, five years old, of strong hereditary tendency to tubercle, had asthma for the first time last winter. Under the use of cod-liver oil it was somewhat mitigated, but continued more or less, without much impairing the health, till warm weather. It then entirely disappeared, and the child continued well through the summer. But with the return of the cold weather of autumn, the asthmatic breathing again commenced. The general health, however, continuing good, without loss of spirits, appetite, or flesh, nothing was done until about the first of December, when a severe cold aggra-

vated all the symptoms, and Dr. WARE was called to see the child. It was then, although up and dressed, breathing with much difficulty, with loud sonorous râles, which could be heard immediately on entering the room, like a person labouring under a paroxysm of asthma. Over the whole of both sides of the chest could be heard loud mucous and sonorous râles without other evidence of special local disease. The constitutional symptoms were trivial, and the cough not urgent. Under the use of Dover's powder and mild expectorants, the symptoms were mitigating, when, about the fourth or fifth night, the child suddenly awoke in a violent paroxysm of coughing, so persistent and suffocating, that it appeared as if it must die in it. It continued, it was supposed, about half an hour. The father, who was a medical man, said, that during the paroxysm of dyspnoea, he distinctly heard some foreign body pass repeatedly up and down the trachea, producing the greatest suffocation when it was near the larynx. This state of things was suddenly relieved by the expulsion from the mouth of the mass of tubercle which was exhibited. The body was of an oval form, half an inch in length by one-quarter in width; homogeneous, and presenting to the eye, and under the microscope, the appearance of crude tubercle. The next morning the child remained in about the same condition that it had been in the evening before, and continued to convalesce as it had done before, the condition of things in no way altered by this episode. Although the child was very carefully examined before and after the attack with reference to tubercular disease, yet there was not a physical sign which indicated the presence or the discharge of such a mass as was exhibited. The physical signs were only such as mild bronchitis in an emphysematous person would occasion. Dr. WARE thought it very difficult to explain where, in the lungs, the air-passages, or their neighbourhood, such a body could be deposited, or from whence it could escape, without presenting more decided symptoms than were discovered in this case.

Abnormal Secretion from the Breast.—Dr. STOREE reported the case. A woman, who had been confined five years previously, consulted him a short time since about a peculiar secretion from one of the mammae. There had been a constant secretion of fluid from the breast since her confinement; and for several months it had assumed the peculiar appearance now presented, resembling the inky secretion of the sepia. Her system appeared feeble, and there was some slight tenderness in her breast upon pressure.

Delivery facilitated by Decapitation of the Fœtus.—Case reported by Dr. GRAY. A patient, somewhat over thirty years of age, was taken in labour with her first child in the early part of November, 1852. At the end of thirty-six hours, the left hand and arm were found protruding externally, and the head, which was in the hollow of the sacrum, was forcibly pressed against the sternum. Under these circumstances, turning being out of the question, evisceration was at once resorted to. The presenting arm, nearly filling the vulva, was removed at the shoulder; a cord wound around the finger, and thus passed completely over the neck, served to bring the child sufficiently low to render evisceration of the thorax comparatively easy. This operation being finished, together with the removal of several bones, the child, even though propelled by violent pains, made but little progress; and, after assiduous efforts for a period of two hours, decapitation was decided on. The neck being drawn fully into view by the cord, was readily divided by a scalpel. The body, by means of the remaining hand, was easily withdrawn, and the head as readily followed from the vagina—the operator's fingers being intro-

duced, without difficulty, to bring it away. The head was of the usual size, and the child was a large one.

Dr. STORER thought this a remarkably favourable result; he alluded to the great difficulty uniformly experienced in removing the separated head; he knew of but two cases besides the one reported by Dr. Gray having occurred in this city; one was attended by Dr. Channing, and, for a long time, efforts at removing the head were unsuccessful. Dr. C. removed it on the succeeding day. In his own recently reported case, Dr. S. had stated that he used great exertion for half an hour after the attending physicians were exhausted, and only continued his efforts from a desire to free them from any odium likely to follow, were the head left in the uterus: he had then succeeded.

Pneumonia; rapid Progress of the Disease.—Dr. ALLEY related the case. The patient, a female, 7 years old, of feeble constitution, was taken, the day previous to his first visit, with a cold, followed by feverishness. A dose of castor-oil was given by the mother, but the child not improving, Dr. A. was sent for, and at 7 o'clock P. M., found her suffering great dyspnoea; her skin hot; pulse frequent; auscultation detected sonorous râles on both sides of the chest, and, on the left side, a strongly-marked souffle. Revulsives were applied to the chest and to the extremities, and a mixture of syrup of Tolu with a small proportion of wine of ipecac. was prescribed—more active treatment appeared not warrantable. Prognosis doubtful. At 11 o'clock P. M., Dr. A. was suddenly summoned, and, on arrival, found that the child had ceased to breathe a few minutes previously. *Post-mortem* examination, the next day, conducted by Dr. CHARLES HOMANS, disclosed extensive inflammation of the bronchial tubes and congestion of the lower lobe of the left lung, with partial congestion of the right lung. The case is interesting on account of its exceedingly rapid progress; the child was at school on the day previous to its decease.

1853. January 10. *Effects of powdered Hemlock Bark applied to a chafed Neck in a Child.*—Dr. GOULD reported the production of erythema, pain, and finally sloughing, from the above application; a poultice was placed upon the sore, and the latter seemed after a time to be nearly healed, when the child suddenly refused to nurse, and soon died. Dr. G. said he did not know any reason for such an effect on the neck, except it were the coarseness of the powdered bark. The actual cause of death may be supposed to be similar to the shock to the system from extensive burns and other large suppurating surfaces.

Sudden Restoration of Power in a Paralyzed Arm, consequent upon a violent Effort of the Will.—Dr. BOWDITCH mentioned the case of a young woman, who had been under his care at the Massachusetts General Hospital. She was a domestic, æt. 19 years, and, in the winter of 1851–2, fell upon the ice, while carrying a basket of clothes; was confined two months with the injury, while nothing was perceptible except a slight partial dislocation of sterno-clavicular articulation of the right side. There was for months, however, constant pain in right side of trunk, and total paralysis of motion of right arm. Sensibility also much lessened; could bear without flinching the hardest pinch. Various remedies had been applied since her entrance at the Hospital, Sept. 8, 1852, with gradual relief to the side—the paralysis of the arm remaining the same. Finally, electricity was tried for several months, with occasional omissions.

January 4. The report was paralysis of arm, as before.

5th. More sensitiveness to electricity than at any previous period. The application was reduced in strength. The same evening, at supper, the patient having perceived no difference in the limbs, made a sudden, violent effort to raise the palsied limb, in order to save a cup that was falling from the left hand, and immediately the power was restored. The next day the report was, "can move fingers and arm equally well with the corresponding parts of left upper extremity; can grasp, but less firmly than with the left. Sensation (by comparison) equal in both arms; quite sensitive to a pinch."

* Since that hour the patient has continued improving, and has daily sewed, using her right hand in the operation.

Cataract from Traumatic Injury. Extraction.—Dr. WILLIAMS reported the case of a man, who, while splitting wood, received a blow on the eye from a flying fragment, which dislocated the lens into the anterior chamber. He was not seen by Dr. W. till about a fortnight after, at which time the lens had become opaque. The destruction of the globe was threatened, from the inflammation caused by the presence of so large a mass in the anterior chamber. To avoid this, Dr. Williams extracted the lens through a section of the lower half of the cornea. The patient persisted in leaving the city before the wound of the cornea had entirely cicatrized; but he returned yesterday, and the union was found to have been accomplished without accident, though the cicatrix is somewhat wider than usual. There is still considerable injection of the tunics of the eyeball, and on account of this the patient cannot as yet distinguish objects, though the pupil appears clear.

January 24.—Scrofulous Disease of Testicle.—Dr. WILLIAMS exhibited the specimen, removed by him five days since, from a patient æt. about 35—a widower. The organs appeared perfectly healthy, till, in dressing skins, he received a slight blow upon the testes. Slow inflammation appeared to be induced in consequence; and, after a short time, a fistulous opening formed in the skin, on the left side. The left testicle was greatly enlarged and indurated. The right testis was also enlarged, but to a less extent. A constant discharge of scrofulous pus was furnished by the fistulous opening.

When cut open, after its removal, the organ seemed converted into a mass of tubercular substance, in which the process of softening had not commenced. The deposit seemed to have taken place into the seminiferous tubes, the form of which could be distinctly seen. On examination, Dr. Durkee found some of the dark granules met with in the seminiferous tubes, but no spermatozoa. Though the form of the tubes was preserved by the adventitious deposit, their structure seemed to have disappeared.

July 1, 1844.—Pediculi from the Roots of the Eyelashes. Cases reported by Dr. HOOPER.—Thomas Mahan, an Irish boy, ten years of age, came to the Infirmary, having been troubled for some time with an intense itching at the edges of eyelids. On examination, the ciliæ were found occupied by numerous ova, and at their roots, firmly attached to the edge of lids, numerous parasitic animals resembling the pediculi pubis; two or three specimens were detached by means of a flat probe, but were unfortunately lost before a proper examination could be made of them.

Dr. H. directed an application of the nitrate of mercury ointment to be made to the lids, but the boy never made his appearance again, and it was impossible to learn the result of the case. The mother was quite indignant at the disease being attributed to want of cleanliness.

October 30, 1844.—J. F., æt. two years, a little girl, neat and clean in her person, came to the Infirmary with her parents, who are persons in good circumstances, for an affection at the edges of lids. She had been troubled only a few days; and, on superficial examination, the disease looked like the little scabs of *tinea ciliaris*. The parents had, however, detected the disease. There were no ova, as in the preceding case, but pediculi firmly attached to the edges of the lids. Dr. H. removed one with some difficulty as a specimen, and directed the application of unguent. hydrargyri, and took the precaution to retain the future history of the case. The disease was attributed to communication with domestics in the family, who were fond of the child, and had her in their society a good deal.

The father informed Dr. H., next day, that the application immediately destroyed the vermin, and they fell from the edges of the lids.

January 4, 1852.—An Irish woman came to the Infirmary with an affection (inflammation) of the cornea of left eye. Observing some peculiar appearances at the edge of the upper lid, which looked like the dried secretion of the sebaceous follicles, Dr. H. remarked to the students that they resembled pediculi, and attempted to remove one; but not succeeding, in the hurry of the moment, he did not assure himself of the fact. On the 6th, the woman came again, and, assisted by a stronger light, Dr. H. detected the nature of the disease on the lid, and that it was due to the presence of pediculi thickly covering its whole edge; they were detached (a half dozen specimens) with great difficulty, so tenacious were they of their grasp. How much they had to do with the affection of the cornea, it is, at present, impossible to say.

Dr. DURKEE remarked that these pediculi appear to have a preference for those regions that are most richly endowed with the sebaceous glands and their related hair follicles. The sebaceous fluid is, probably, the favourite food of these parasites; and they can fix themselves firmly at the mouth of the sebaceous hair-follicle close to the shaft of hair, or on the hair itself, and thus take in the secretion as it flows out upon the surface. The eyelids are very plentifully supplied with the sebaceous apparatus, even in young subjects; and, in the case of the two children, related by Dr. Hooper, the insects could find a more abundant supply of nutriment from the tarsal glands than from the pubic region. In the adult subject, the desired accommodations for their sustenance and for depositing their ova are probably greater in the pubic region than elsewhere.

Dr. D. stated that he had examined, with the microscope, several living specimens of the pediculus pubis and of the pediculus ciliæ which Dr. Hooper had furnished him for that purpose, and they all appeared to be alike in their anatomical structure. They have numerous hairs, or spines, varying in length and projecting at different points from the antennæ, the body, and legs. These hairs, together with the sharp claws at the extremities of their long legs, to say nothing of their jaw teeth, give the animal great power to retain his hold wherever he may choose to establish himself—and explain the reason of the intense pruritus which these marauders produce, whether they remain steadfast in one place, or are engaged “in marches and countermarches” upon their chosen play-ground. The specimens from the eyelids are of a lighter colour than the others.

Dr. HOOPER said that he had never, himself, seen any other cases of this disease. Lawrence says he never saw but two, and quotes from Demours, that neither he nor his father ever had seen lice on the cilia. Scarpa says he had seen only one instance, but observes that cases of the same sort are mentioned by Guillemeau (*Treatise on Diseases of the Eyes*), and in *Corvisart's Journal*, August, 1812.

All seem to agree in thinking this insect the same with that of the pubis, which is thus described by Guerard. Its body is large and round, the corselet short, nearly confounded with the abdomen, its four hind feet very strong. They are oviparous, the eggs hatch in six days, and in eighteen days they have the power of reproducing. According to Cazenave, this insect has been called the *pediculus ferox*, from the intense itching it excites. Velpeau says the edges of the lids are sometimes invaded by the *pediculus pubis*, and relates a case communicated to him by Mr. Champion, in which a young peasant-girl suffered horribly from the presence of an immense number of these insects on the edges of the lids.

Good says this insect chiefly attacks the groins and eyebrows, and may be distinguished by the crab-like, cheliform structure of its legs; its antennæ consist of five articulations.

24th. Ovum Blighted and Retained.—Dr. JACKSON showed the specimen which he had received from Dr. HARTNETT, with the following account of the case: The patient was a married woman, had had other children, and considered herself as at the ninth month of pregnancy when the mass came away. She had had the usual symptoms of pregnancy, but had never had the occasional hemorrhages that Dr. J. remarked upon as characteristic of the cases that he had observed here. The abdomen was about as large as at the seventh month of pregnancy, and remained quite large after the ovum came away; apparently from tympanites.

The ovum would, probably, have been two and a half or three inches in diameter when entire, and presents the appearance usual in such cases; the whitish, dead, opaque, lymph appearance externally; the traces of shaggy chorion upon the torn surface, and the distinct amniotic cavity; the fœtus and cord, of which there may or may not be some remains in these cases, were not to be seen; and there was no appearance to show that they had existed previously to the delivery. Dr. J. remarked upon the frequency of these cases, and the little notice that seems to be taken of them by writers on midwifery.

Ergot administered as preventative of Flowing after Parturition.—Dr. JACKSON had employed the infusion of the *secale cornutum*, effectively, for the above purpose, in the case of a female predisposed to flowing immediately after delivery. Drs. Perry and Storer had thus employed the ergot.

Dr. STORER said he usually steeps $\mathfrak{z}\text{i}$ of the drug; when the head of the child comes down, he gives, in such cases, one-half the amount; on the passage of the head, in one instance which he cited, *there was profuse flowing*; in from ten to fifteen minutes, the ergot produced its effect; the bleeding ceased.

Dr. JACKSON had seen effects produced by five grains of the ergot.

Dr. BIGELOW, Sen., spoke in favour of the exhibition of ergot, with the above intention; he had seen it of great service; ergot, however, is often given unnecessarily or prematurely.

Imperfect Fracture of the Body of the Twelfth Dorsal Vertebra.—Case communicated to the Society by Dr. WILLIAM D. LAMB, of Lawrence, and the specimen exhibited. The patient was a large muscular man, seventy years of age. On the 6th inst., at 1 P. M., he was in a railway car, that was thrown from the track and completely demolished; after which he was found lying upon his back, across a large stone. Having been

conveyed home, from which he was several miles distant, he was seen by Dr. L. about 4 P. M., and found to be severely bruised in different parts of the body, besides having several deep wounds of the scalp. The extremities being cold, and the pulse rather small, he took a little wine, having already taken a little brandy and water; after which he was able, with moderate assistance from two persons, to walk up one flight of stairs, across two rooms, and assist himself, somewhat, into bed. On the 7th and 8th he was quite comfortable; and once, at least, on the morning of the 8th, stood up with some assistance, and took two or three steps forwards, but was unable to use much exertion; respiration easy, though mostly diaphragmatic, this last being explained by a fracture of the seventh rib upon the left side, near its angle.

On the morning of the 9th inst., there was entire loss of the power of motion in the lower extremities, of which there had been previously observed no indication whatever. Upper extremities never affected. Having had no discharge since the day before the accident, he had taken rhubarb on the evening of the 8th, and this having had no effect, two enemata were administered; but they were at once returned, and he was further found to have lost all expulsive power. Tongue dry, and with a rough brown coat; and so remained until death. Pulse 78, and rather small. At half past one P. M. there was loss of sensibility of the lower extremities, and as high as the ensiform cartilage. Respiration diaphragmatic, but aided by the muscles of the neck. Had passed no urine since the preceding evening; there was drawn, by the catheter, one pint and a half, having an ammoniacal odour. Pulse almost imperceptible at the wrist. On the 10th, loss of sensibility to the fourth intercostal space, and no movement of the intercostal muscles below this; action of the diaphragm and cervical muscles very powerful. Half a pint of ammoniacal urine by the catheter; the secretion of nineteen hours. In the evening, one slight and involuntary discharge, having taken during the previous twenty-four hours four drops of Croton oil, in half-drop doses; some peristaltic motion of the bowels audible. Slept quietly until midnight, when the respiration was found to be more laboured; there being no movement below the third intercostal space. At 4 A. M. the pulse became irregular and more frequent. Mind clear, as it had been from the time of the accident, until half an hour before his death, which occurred on the 11th inst., at half-past ten A. M.

Six hours after death the body was examined; the spinal column being removed from the last cervical to the second lumbar vertebra. The twelfth dorsal vertebra was found broken through transversely, from before backwards, and very close to the intervertebral substance that connects it with the eleventh dorsal. On the left side the fracture extends to about the attachment for the last rib. From about the median line, and around towards the right side, nearly or quite to the processes, the intervertebral substance is broken through continuously with the fracture, but the bone is entire; and so also is the fibrous membrane that connects the edges of the bodies of the vertebræ entire to some extent from the processes forwards, though the intervertebral substance beneath is lacerated. Separation of the fracture anteriorly about two lines; the motion between the parts being considerable when the bodies had been sawed away from the rest of the vertebræ. Some blood effused into the neighbouring muscles. Spinal canal examined from the eleventh dorsal vertebra to the second lumbar, inclusive; between the theca and spine there was found an effusion of blood, less than the third of a teaspoonful, but none within the theca; between the arachnoid and pia mater, apparently, a considerable effusion of serum; spinal marrow not cut open,

being evidently uninjured, though the vessels of the pia mater were congested. Thorax and abdomen not examined.

Dr. Jackson, who showed the specimen, remarked that although there was no appearance of injury of the spine above the part that was sawed open, yet it is to be regretted that circumstances did not allow of a more full examination, as it will be remembered that the paralysis extended far above the seat of the fracture; and it may be also remarked that, though there was no complaint of pain in this last region, and no pain on pressure over the spinous processes, there was considerable pain between the shoulders from the time of the accident; his chief complaint was of his shoulder, which, by a singular coincidence, had been dislocated the day before the fatal accident. It may be questioned, indeed, whether the fracture of the twelfth dorsal vertebra was the cause of the paralysis. There could have been no displacement, the effusion within the canal was slight, and there seems to be, so far as is shown by the specimen, no physical explanation of the paralysis; concussion of the spinal marrow, it is true, is to be considered. If, however, the fracture and other injuries about the twelfth dorsal vertebra did cause the paralysis, it will be borne in mind that this last did not occur until between two and three days after the accident; and that, moreover, it proved fatal in an exceedingly short space of time. Whatever may be the explanation therefore of the case, it is one of remarkable interest, and it is a very rare form of fracture, if it has ever been before described.

Fibrous Tumours of the Uterus.—Dr. PUTNAM, who attended this patient, reported that she was forty-six years of age, had been a widow for twelve years, and had had one child seventeen years ago, the labour being severe. Menstruation habitually profuse for years, though the periods were not too frequent; and there was not much pain. No other pelvic symptoms. Death from acute and very rapidly fatal oedema of the lungs.

Several years ago, Dr. P. had been consulted by a sister of this woman, whom he found affected also with fibrous tumour of the womb; and in some other cases he had known different members of the same family to be affected with this disease.

The uterus, which was exhibited, weighed three pounds, and was perfectly buried in fibrous tumours, varying in size generally from about one to three inches. One of the largest was in the cervix; and seemed to have been originally formed in this unusual situation. Another of the largest hung quite freely into the peritoneal cavity. A third, perhaps two and a half inches in diameter, hung into the cavity of the fundus of the uterus by a small peduncle. The fibrous structure of these tumours was not so strongly marked, and they were less dense than usual; they had not, however, undergone any transformation, but notwithstanding their size and numbers, looked rather fresh and recent. Uterine cavity much elongated, and contained a quantity of bloody mucus; fundus at some points only half an inch in thickness; blood-vessels much enlarged, as usual.

A second specimen of fibrous tumour of the uterus was also exhibited; sent to the Society with a history of the case, by Dr. CHARLES GORDON. In this case there was but a single tumour, and it projected directly into the cavity of the body of the organ; it could not be said, however, to be pedunculated, the attachment being about equal in extent to the diameter of the tumour, which was estimated at nearly two and a half inches. Structure flaccid, and imperfectly fibrous. The investing layer of the uterus where it is projected into the cavity of the organ is quite thin, and at the most prominent part red-

dish, but not ulcerated. Uterine cavity considerably enlarged; parietes flaccid, and thinner than in the unimpregnated state. Neck not involved. The specimen resembles most strikingly one that has been figured by Dr. BAILLIE, in his *Plates of Morbid Anatomy* (Pl. III. Fig. 2).

The patient was twenty-eight years of age. Married six years; dysmenorrhœa, with delicate health previously. Two years after marriage she conceived; but was not aware of her situation until the fourth month, when she threw off what was called by her physician a "blighted foetus." From this time there has been hemorrhage, with pain at the catamenial periods; and as these symptoms have been constantly increasing, she has gradually sunk under them. The hemorrhage would last for from ten to twenty days; and during the last two months it has been, as well as the pain, constant. For a time she was quite comfortable during the intervals of the uterine attacks; the appetite was good, she usually resumed her duties, and had no uterine troubles, except a slight leucorrhœa. Finally she became anemic, lost her appetite entirely, had uninterrupted nausea and vomiting, and, after eight or ten hours of coma, died. On examination, per vaginam, the uterus always seemed heavy to the touch, and anteverted to a considerable degree, so that the mouth was drawn forcibly upwards, and directed towards the rectum; to the feel, the mouth was firm and contracted.

Uterine Hydatids, connected with the Membranes of a Four Months' Foetus.—Dr. JACKSON exhibited the specimen, which he had received from Mr. E. CHENERY, a medical student. It presents the usual appearances, but in addition, a portion of the shaggy chorion, which is quite healthy and free from the cystiform degeneration, a well-marked amniotic cavity, and within it a small portion of the umbilical cord; chorion separable, as usual, from the amnion. The cord, Mr. C. stated, was about eight inches in length; and the foetus about seven or eight inches, plump in appearance, and altogether about as much developed as at the fourth month. A portion of the cysts only was removed; the whole amount, with the membranes, being estimated by Mr. C. at five pints.

The patient was thirty-eight years of age, and had had eight children; the last, eight months ago, was stillborn. Four months ago she again conceived; nothing unusual, except that she had every day a little bloody-looking discharge from the vagina. One month ago she took a severe cold, had cough, and from that time the discharge ceased. Trouble at the stomach, however, came on, and in another month the abdomen began to swell; this last rapidly increased, the lower extremities afterwards became swollen as towards the close of her former pregnancies, and at the expiration of three weeks, when labour finally came on, she thought herself altogether as much swollen and oppressed as she had usually been at the full period of pregnancy.

On the evening of the 20th inst., after a hard day's work, pains came on; through the night they increased, and the next morning the waters were discharged and the foetus expelled. Mr. C. was then called, the pains had ceased; there had been profuse hemorrhage, by which the patient was very much exhausted; the abdomen much distended, and there was still some bleeding. The cord was divided; ten grains of ergot, with a little lead and opium were given; and an attempt was made to remove the placenta. After waiting for a time another attempt was made, but without success. A scruple of ergot was then given, and repeated in fifteen minutes; which was soon followed by pains, and a discharge of the hydatid mass, &c.; the uterus then contracted; and the patient has done perfectly well since.

Dr. J. remarked, that in the specimens of hydatids heretofore shown to the Society, there had sometimes been slight traces of the foetal membranes, but nothing more; nothing that would show conclusively, as the present case does, that the mass is only a degenerated or diseased ovum.

ART. V.—*Case of Abortion, occurring at the Fifth Month of Gestation—*

Child born alive. By A. W. BARROWS, M. D., of Hartford. (Read before the Hartford Medical Association, and published by its request.)¹

November 18, 1852, 3 A. M.—I was requested by Mr. J—— to visit his wife in —— Street, he informing me, at the same time, that she was some four or five months advanced in pregnancy, and that she had for several hours been suffering more or less from labour pains. He wished me to make no delay, as the pains were then urgent. I accordingly complied with the request, and was soon at the bedside of my patient. As I entered her apartment, she was experiencing a severe expulsive pain, and when it subsided, she remarked that she was through, meaning that the foetus was expelled. On making an examination, I found the membranes entire, containing the foetus and liquor amnii, and wholly without the vulva. The sac, I should judge, contained at least two pints of fluid. The membranes were not ruptured for some little time, during which the movements of the child were active and vigorous. On rupturing the membranes, and exposing the child to the air, it instantly gasped, or, perhaps, I ought rather to say, uttered a cry so loud as to be heard, distinctly, at a distance of several feet, it being at the same time covered with the bedclothes. The cord was tied on its ceasing to pulsate at the end of two or three minutes, separated, and the child wrapped in warm flannels. As it continued to manifest the ordinary appearances of life, its condition was watched with much interest and care. It breathed with a kind of convulsive gasp at intervals of one or two minutes for a period of forty minutes. The heart beat regularly for forty-five minutes. The pulsations of the arteries could be distinctly seen during all this time at the top of the sternum and right side of the neck. The frequency of the pulse, I am sorry to be obliged to say, was not noted, but it was not very great. I think it did not exceed one hundred per

¹ Dr. A. W. BARROWS—

DEAR SIR: The Medical Association of this city having listened to your interesting report, in relation to a case of midwifery occurring in your practice on the 18th ult., in which the foetus was born, as you have proved, during the fifth month of gestation, have requested me, as the Secretary, to transmit to you the following:—

Voted, That the subject of the communication just made to this Association, by Dr. Barrows, one of its members, is regarded by us as of peculiar value to the medical profession, particularly in its medico-legal relations, as it is extremely difficult to establish facts in cases of this nature, and we have the utmost confidence in the accuracy of the report, in all its details, which has been read to us this evening. In order to give so useful a paper an extended circulation, we respectfully request that a copy of it be forwarded by Dr. Barrows to the *American Journal of the Medical Sciences*, for publication.

I am, dear sir, very truly and respectfully yours,

H. HOLMES,

Secretary of Hartford Med. Association.

HARTFORD, December 21, 1852.

minute. I ought, perhaps, to remark here, that the respiration was, during the last half of the time, induced, in part at least, by percussion. The weight of my finger placed on any part of its chest, was sufficient to cause it at once to respire. The child repeatedly opened its mouth, and thrust forward its tongue. Voluntary motions of its extremities were occasionally made for twenty minutes or more, but they grew more and more feeble from the first, and the limbs became cool, and appeared lifeless some time before the heart ceased to act.

The child, a female, appeared every way well developed; measuring ten inches *in length*, and weighing fourteen ounces. The integuments were for the most part firm, and of a light colour; the portion covering the abdomen was thin, and of a reddish hue. The scalp presented a downy appearance, on some parts of it hair was visible, some of sufficient *length* to be elevated with the point of a knife; the nails were not fully formed, but their places were well marked out, and their rudiments plainly discernible; a slight degree of hardness and roughness could be felt in their places; the pupil could not be seen, the iris being entirely closed by the *membrana pupillaris*. The head possessed a considerable degree of firmness; the temporal and occipital bones appeared to be pretty well formed, the frontal and parietal were imperfect and widely apart; the muscles were small but well marked.

I have been thus minute in giving the details of this case, describing, as I have done with much care, the appearance, size, and condition of this child, for the reason that I consider it an extraordinary instance of viability. For we have here the history of a child, born before the completion of the fifth month, whose lungs played for a period of forty minutes, and whose heart continued to perform its regular pulsatory action for three-fourths of an hour. That Mrs. J——, the mother of this child, was less than five months advanced in gestation at the time of its birth, the following facts will clearly demonstrate.

On the 18th of May, just six months previous to her abortion, she met with a miscarriage, at which time I was in attendance, and delivered her of the foetus with my own hand; some difficulty having been experienced in the extraction of the head, after the body was expelled, enables me to recall the particulars of the case; and the date found on my book, according as it does with the recollections of the patient, renders any mistake as to the time impossible. Mrs. J—— regained her strength slowly; her lochial discharges continued at least four weeks, and during a portion of the time, they were profuse. I saw her on the 18th of June, when she informed me that her vaginal discharges had considerably increased within the past day or two, so much so as to give her anxiety; they were at this time of a bright colour, having the appearance of blood. Was this the return of the catamenia? I think it was.

Active astringents were administered, but it was more than a week before the flow wholly subsided. On the 27th June, she, in company with her husband, made a short journey to a neighbouring town, where she remained several days. I am particular to mention this circumstance, as it establishes a very important point, viz., the date of the earliest period at which impreg-

nation could again have taken place. For she confidently asserts, and I have no reason for doubting her veracity, that it was during her stay in the country that she first had sexual intercourse, subsequent to her miscarriage. Mrs. J—— has been thrice pregnant. Her first child was born at the full term, is now living, and is about two years old; she miscarried with the second at six months, as above stated; child was stillborn. In each of these pregnancies she was early aware of her condition, having had nausea, headache, and other ordinary symptoms. She experienced these symptoms early in July last, and refers the commencement of her last pregnancy to that time. It would add interest to this case to be able to state the precise time when she quickened, but on this point she cannot speak with confidence; thinks, however, that it was about four weeks previous to her abortion. The motions were never felt but feebly, whereas, in her other pregnancies, they were well marked and strong. The abortion was attributed to over-exertion, particularly in washing windows, when she was obliged to reach. The miscarriage was supposed to be the result of a fall.

There are some points connected with this case which I think well worthy our consideration. The fact that Mrs. J—— miscarried on the 18th May; that her lochial discharges were profuse and long-continued; that I was called to prescribe for her on the 18th of June, when she had increased vaginal discharge, probably the menstrual flow; and that this continued for a week or more before it wholly subsided; the circumstance of her going from home on the 27th of June, to spend some days in the country, and what is of the greatest importance, that it was during her stay in the country that she first indulged in sexual intercourse subsequent to her miscarriage, enables us to specify with a good degree of accuracy the time when impregnation took place; and furnishes us with conclusive evidence that it could not have occurred earlier than the 27th of June; for we have not only the positive testimony of the parents, but also, as has been shown, a chain of circumstances so linked together, as to corroborate their testimony in a way to establish the fact beyond cavil. Now, allowing that impregnation took place at the earliest possible date, June 27, and counting from that time to the 18th of November, the time of delivery, and we find it to be only one hundred and forty-four days, or less than five calendar months. We have here then satisfactory proof that it is possible for a child, born thus early, measuring but ten inches *in length*, and weighing only fourteen ounces, to exhibit all the important indications of life, viz., respiration, regularity of the heart's action, voluntary motion, and the utterance of sound.

This case is of importance, principally in view of its medico-legal relations. It has ever been a matter of great difficulty to establish facts in cases of abortion, especially as to dates. It is not easy to prove that impregnation, in a given case, took place at a certain specified time; neither is it any the less difficult to arrive at any satisfactory conclusions as to the period of gestation, from the appearance of the child at the time of its birth. For, if we inquire

of authors, examine statistics or reported cases, with reference to the condition of the fœtus at five months, we shall find a wide difference of views expressed, both in relation to its development and viability; a discrepancy having its origin, no doubt, in the first place, in the uncertainty which usually exists as to the time when impregnation has taken place; and, secondly, arising from the unequal development of the fœtus at particular periods of gestation in different cases.

The *length* of the fœtus at five months, is, according to Burns, Hamilton, Dewees, Devergie, and Velpeau, from six to seven inches; Taylor, from six to eight inches; Beck, seven to nine inches; Maygrier, Soemmerring, and Ryan, ten inches. Beclard, after making fifty observations of the fœtus at four and a half months, states its length, at that period, to be nine inches, agreeing very nearly with Maygrier and Ryan.

The *weight* of the fœtus at five months, according to Taylor, is from five to seven ounces; Beck, nine to ten ounces; Maygrier and Ryan, sixteen; and Velpeau, seventeen ounces. These statements, in relation to the length and weight of the fœtus, have been copied from the works of the above-named authors, and from Guy's work on *Medical Jurisprudence*.

If we extend our investigations farther, and observe what is said in regard to the appearance of the fœtus at five months, in other respects; for instance, whether we shall find it with or without hair, with or without nails, &c. &c., we shall find a similar discrepancy to exist. As to the question of *viability*, most authors admit that it is possible for a child to be born alive at five months, and they are equally agreed in saying that it is extremely rare for a child to come to maturity born earlier than the seventh month. Velpeau says that the fœtus which is, according to some persons, viable at four and a half months, does not, according to others, really enjoy viability till the seventh month. Hamilton considers that all accounts of children living to maturity, who were brought forth at the fifth or sixth month, are fabulous. John Hunter says that a child can be born alive at three months, but cannot be reared if born before seven calendar months (Guy's *Med. Juris.*). Velpeau relates an instance of a woman being delivered of a child at term, and in five months and twelve days this same woman was again delivered, at the same hospital, of a child that weighed one pound and a quarter, and measured nine inches. This child lived twenty-eight hours.

"Dr. Francis gives an instance of a fœtus born at the twentieth week of gestation, which lived one hour, and weighed one pound and six drachms; its length being ten inches. Too many circumstances, he remarked, conspired to render the age of the fœtus doubtful; it was the product of a first conception, and the parties were beyond suspicion."

"The same gentleman gives another case where a fœtus, born in the twenty-third week of gestation, survived to the seventh year, and is, probably, still living."—Guy's *Med. Jur.*

Cases are reported by different persons, of children being born alive at the fifth month and coming to maturity; but, as the descriptions given of them,

correspond, in most instances, to characters usually ascribed to the fœtus at the sixth or seventh month, we should be slow in giving full credit to the correctness of these reports. It is very rare to find an instance of premature birth which is not attended by circumstances that serve to render the period of gestation doubtful; and it is only on the ground that the date of conception is accurately established, that special notice can be claimed for the case above recited.

ART. VI.—*Case of Excision of the Scapula.* By S. D. GROSS, M. D.,
Professor of Surgery in the Medical Department of the University of
Louisville.

MATHEW GRACEY, aged forty, a gentleman of small stature and delicate frame, of a nervous temperament, and a merchant by occupation, of Eddyville, Caldwell County, Kentucky, applied to me in September, 1850, on account of an enormous tumour of the right shoulder, which he had first perceived about nine years before. His general health had always been good, and was so at the time of his visit. He was not conscious that his shoulder had ever received any injury, and no disease of a similar kind ever existed in any member of his family.

The tumour was fifteen inches in its vertical diameter, and fifteen inches and a half in the transverse. Its surface was perfectly smooth, except at one point, a little above its centre, where it was slightly tuberculated. It was hard and incompressible in its entire extent; the skin was perfectly sound, and there was no enlargement of the subcutaneous veins. By taking hold of it, it could be moved about from side to side, and lifted somewhat from the subjacent parts. Its superior limit corresponded with the shoulder-joint, anteriorly it projected into the axilla, and below it reached as far down as the ninth rib. Pressure upon the tumour produced no pain or uneasiness, except at its upper extremity, near the edge of the trapezius, where it was, and had been, quite tender for some time. During the last three months, the swelling has been the seat of a dull, heavy, aching pain, extending up the neck, and down the right arm as low as the elbow, most distressing at night, and always aggravated by the recumbent posture, probably in consequence of the pressure of the bed. The patient was unable to raise the corresponding limb without the aid of the sound one, and the shoulder was sensibly dragged forward towards the axilla by the weight of the tumour. The outline of the scapula could be distinctly traced only behind and above.

The tumour had increased rapidly within the last twelve months, and had, in great measure, disqualified Mr. Gracey for the active duties of his vocation. Four years ago, when he first consulted me respecting it, and when I strongly

advised an operation for its removal, it was scarcely the size of a large fist, and entirely free from pain and inconvenience.

Having prepared my patient's system by purgatives, rest, and a properly regulated diet, I performed the operation of excision, on the 26th of September, in the presence of my friend Dr. James Johnston, Professors Miller and Rogers, and Drs. Colescott, Raphael, Thomson, Trabue, Clark, Washington, and Murray. A full dose of chloroform having been administered, an incision, sixteen inches in length, was made from the superior angle of the scapula to the inferior extremity of the tumour, its direction being obliquely downwards and inwards. Another, beginning about five inches below the upper end of the first, and terminating about the same distance from its lower end, was then carried, in a curvilinear direction, so as to include the small oval flap of skin with the tubercle, previously alluded to, in its centre. The integuments, which were exceedingly dense and thick, especially at the superior part of the tumour, were then dissected off from the surface of the morbid growth, first towards the spine, and then towards the axilla. Having detached the elevator and trapezius muscles, I sawed through the acromion process of the scapula just behind the clavicle, and then divided the broad dorsal and anterior serrated muscles. Carrying my fingers next underneath the tumour, and raising it up, I severed its connections with the ribs, cut the deltoid and other muscles of the arm, sawed the neck of the scapula, and thus removed the entire mass with comparatively little difficulty.

Several vessels were divided in the early stage of the operation, at the posterior and middle part of the tumour; but these were easily controlled by the fingers of my assistants. Several arteries near the neck of the bone bled so freely as to demand the ligature after the removal of the morbid growth. About twenty-four ounces of blood were lost. The patient became very faint towards the close of the operation, and cordials were necessary to revive him.

The immense wound thus produced was dressed with three interrupted sutures and adhesive strips, and supported by a compress and a broad body bandage. The patient was placed in bed, and immediately took one grain of morphia.

At 4 o'clock in the afternoon there was a slight oozing of blood from the wound, and the patient complained of the tightness of the dressings, which, however, were found to be sufficiently loose. He had taken half a grain more of morphia, had slept some, and was free from pain; the pulse was 76, and of good volume; and there was no nausea, urgent thirst, or restlessness. On the following evening, September 27, the patient having slight traumatic fever, was ordered ten grains of calomel with one of opium and one of ipecacuanha, to be followed in the morning by castor-oil.

No untoward symptoms of any kind occurred after the operation; nearly the whole wound healed by the first intention; and, at the end of three weeks, my patient went home with every prospect of a long and prosperous life. In descending the Ohio River, however, which was at that time exceedingly low,

and which caused his detention upon the way for nearly a fortnight, he took a severe cold, from the effects of which he never completely recovered. A harassing cough set in, accompanied by all the symptoms of pleuro-pneumonia, which were followed, about the middle of December, by those of hectic fever, under which he gradually sank, three months after the operation.

Soon after Mr. Gracey reached home, a small fungus was noticed in the course of the lower angle of the wound, which gradually increased in size, was very red and painful, occasionally bled a little, and obstinately resisted every effort that was made to heal it by his physicians, Drs. Carson and Champion. The latter of these gentlemen writes thus in relation to my patient's general illness:—

“When Mr. Gracey got home, he had a severe cough, which he thought depended upon cold he had caught in descending the Ohio River. The cough continued to increase, becoming more and more annoying, and was soon followed by severe pains, of a pleuritic character, in the chest. These pains frequently lasted for hours at a time, and generally required morphia for their relief; in the intervals, the lungs were always much embarrassed, the respiration being quick and hurried. His suffering, in fact, was constant; he had no appetite, and could not sleep, except when under the influence of anodynes. He became excessively emaciated, and a few days before he expired his reason gave way.”

It is to be regretted that no *post-mortem* examination was made, as this would, at once, have revealed the true state of the thoracic viscera, and shown whether there was any cancerous disease at the side of the fungus, or elsewhere. If Mr. Gracey really had pleuro-pneumonia, as was supposed by his attendants, and if this disease, contracted while he was detained off board a steamboat, was neglected, it is not improbable that the fungous growth was not of a specific character, but the effect merely of ordinary unhealthy action.

The neck and glenoid cavity of the scapula were perfectly sound, as were also the various muscles connected with the tumour, the posterior surface of which was covered by the spinate muscles, in a state of great expansion and attenuation. The morbid mass weighed seven pounds and two ounces immediately after its removal, and belongs to the kind of structure, usually, though vaguely, denominated osteo-sarcomatous.

ART. VII.—*Medical Topography, Climate, Diseases, &c. of Monterey, California.* By W. S. KING, M. D., Assistant Surgeon, U. S. A.

FORTY leagues from San Francisco, and upon the shores of Monterey Bay, is situated *Monterey*, probably the most beautiful village on the coast of California. In all that constitutes beauty of scenery, derived from a proper proportion of woodland, water, hills, and distant mountains, Monterey will bear

a comparison with other places of more celebrity, and its claims, in this respect, are acknowledged by all travellers. The houses (mostly adobe) are built on a broad gentle slope of land (about two miles from Point Pinos), the southern extremity of the bay. They are scattered over an extent of three-quarters of a mile, and, mirrored in the placid waters of the bay, stand in bold relief against a background of extensive forest. The hills in the rear increase in height as they run to the south-east, till, at a distance of forty miles, they are merged in the high mountains of the coast range. The northern shore of the bay is twenty miles distant, bending so far to the west, that the Pacific is not visible from any part of the town. The peninsula, intervening between the bay and the Pacific shore, is covered by a fine growth of tall and stately pines, with a few scattering oak-trees. About a hundred yards from the southern shore of the bay, on a level with it, and skirting the western edge of the town, is a low flat sandy plain, in the centre of which is a lagoon, near half a mile in length by one-eighth in breadth. During the prevalence of the high tides in the spring, the water of the bay flows into this lagoon and keeps it full; but, at other seasons, particularly at the latter part of the dry season, the water of the lagoon recedes towards the centre, leaving a good deal of vegetable matter exposed to the action of the sun, the odour from which is far from agreeable when sufficiently near to inhale it. The water of this lagoon is so brackish at all seasons of the year that cattle will not drink it. Farther to the north and east in the same plain, and nearly parallel with the shore of the bay, are two other lagoons of a larger size, at a distance of one and two miles from the town. At the eastern edge of this last lagoon, the land rises gradually by a continuous elevation about six miles, and from thence by a gradual descent to the Salinas River, a large stream emptying into the bay about ten miles from Monterey. Beyond this river are what is called the Salinas Plains, a broad level prairie of nine miles in width, extending to the San Juan Mountains.

Three miles south of Monterey is the Rio de Carmel Valley, watered by a river of the same name, which empties into Carmel Bay. The soil of this valley is rich and alluvial, adapted to agriculture. This valley and the Salinas Plains are the only points under cultivation near Monterey. Just beyond Carmel River is Point Lobos, a promontory on the coast, celebrated for the number of seals and sea-lions always to be found there.

Monterey redoubt, a few hundred yards to the north of the town, is placed upon an elevation of one hundred and forty feet above the bay. It is surrounded by a picket-work, and incloses a sufficient area for a parade-ground and a garden for the use of the troops.

On the side of the redoubt next the bay is a battery mounting twenty heavy guns. The quarters for the officers and men are built of logs neatly plastered and whitewashed, and are commodious and comfortable.

As the climate and character of disease at the fort and town of Monterey

are precisely alike, it will be understood that both are included in my remarks. The population of Monterey is from six to eight hundred, three-fourths of which are native Californians.

Climate.—The atmosphere is humid, temperature agreeably warm and equable; the prevalent winds are sea-breezes from the west and north; the land-winds from the east and south are much less prevalent, blow less strongly, and can frequently only be detected by the uncomfortable feelings they produce. There is one rainy season from November till April. This is about the average time the rains begin and terminate, although sometimes considerable rain will fall as early as October and continue until May. During this period there are frequent intervals of fine weather, of such extraordinary beauty and balmy temperature that travellers arriving on the coast might well imagine, with Colonel Fremont, that it resembled the climate of southern Italy.

During the dry season, the fogs rise from the sea late in the afternoon, float over the town and disperse usually by 9 P. M.; there is also a fog generally in the morning until 10 o'clock A. M. I may add here that these fogs are found on the entire coast of California as far south as Point Conception. In the rainy season, at which time the winds are from the south and east, there are no fogs; the sky, when not raining, being clear and cloudless. To give some idea of the temperature at Monterey, the following memoranda, extracted from the Meteorological Register of the Post is here inserted:—

Mean annual temperature for the year 1850	. . . . .	55.00°
Coldest day, March 25 (mean for the day),	. . . . .	39.00
Warmest day, Sept. 18, “ “	. . . . .	77.50
Highest range, September	. . . . .	94.00
Lowest range, December	. . . . .	30.00
Mean temperature for 1851	. . . . .	57.54
Coldest day (mean for the day)	. . . . .	46.50
Warmest day “ “	. . . . .	73.50
Highest range, August	. . . . .	75.00
Lowest range, December	. . . . .	40.00

There is a difference between the mean temperature of summer and winter months of only from six to seven degrees, and hence the annual temperature is very uniform, although the diurnal changes may be considerable.

Diseases.—I have little knowledge of the diseases of this neighbourhood previous to my arrival at Monterey in the spring of 1849. In 1844, I am informed the smallpox visited this place, carrying off a large number of the inhabitants, chiefly Indians, who had not been vaccinated. At some of the Missions in California at the same period, nearly the entire population died from the same disease.

I do not know that any particular disease can be said to be epidemic to this location. The diseases from which the inhabitants are entirely free, are con-

tagious or infectious fevers (except the exanthemata), calculus, diabetes, and rabies; those from which they are nearly exempt are consumptions, dyspepsia, aneurism, and malignant tumours; and those which are mild and of rare occurrence are diarrhoea and dysentery. On my arrival at Monterey in 1849, I found hooping-cough and measles of a mild form prevailing in the town. On inquiry, I learned that these diseases were unknown here previous to the arrival of the Americans in 1846, who brought them from the States. A few cases of these complaints occurred here the following year, since which time they have disappeared; and, owing to the peculiar climate, and the prevalence of the strong and constant winds from the ocean, I do not believe they will reappear until imported *de novo*. During their prevalence, some cases of rubeola so much resembled scarlatina, that it was extremely difficult to distinguish one from the other. Some cases of scarlatina were reported to me, but I am unable to say whether they were genuine or not, not having seen them. So far as I was acquainted (and my practice was very general throughout the town), but very few cases proved fatal.

My predecessor, Dr. Murray, U. S. A., has reported several cases of typhoid fever in Monterey in the fall of 1847. These cases occurred among recruits just arrived from a protracted sea-voyage, and were no doubt attributable to the long confinement on shipboard, and the want of a proper supply of fresh and wholesome food. Since that period to the present time, I am not aware of any instance of this fever except one in an emigrant who arrived at Monterey overland, after enduring incredible hardships and sufferings, and who died shortly after his arrival.

Although, now and then, intermittents are met with here, yet in every instance, according to my experience, they were found among recruits who had contracted the disease elsewhere, or, miners who had been living in the valleys of the Sacramento and San Joaquin, where the disease prevails extensively, and who have come here for the benefit of their health. Off from the coast, as far interior as the Salinas River, a few cases are met with, but I have never known a case of intermittent fever *originating* in Monterey. The only epidemic common here is influenza, and in the autumn particularly, when the winds commence to blow from the land (which they usually do a short time before the advent of the rain) nearly the entire population become affected. I am inclined to believe that owing to the situation of the lagoons, already described, if it were not for the setting in of the rains shortly after the commencement of the land-breezes, Monterey would be much more unhealthy, it being to the leeward of the lagoons, and, therefore, exposed to any injurious influence emanating therefrom.

To the unfavourable influence of these winds the inhabitants are accustomed to ascribe an unusual feeling of discomfort and want of energy felt at this time. As many of the people live in low adobe houses, without board floors, and in many instances without windows, the only means of egress being a very low doorway, it will follow as a matter of course that these

dwellings will be low, damp, and badly lighted and ventilated. If to these causes be added coarse and badly cooked food, and the practice of the whole family sleeping in one apartment, it will not be surprising that, as a result of this mode of life alone, scrofula and summer complaint of children, and diseases of the lungs, will occasionally be found, without supposing anything in the climate disposing to the complaints. Scrofula is a disease of rare occurrence; the two latter are more common. More children die of cholera infantum and lobular or infantile pneumonia than from any other disease. These affections, as I have before observed, are produced more by modes of living than to any climatic agency. It is the custom among all classes of native Californians to clothe their children very scantily until they attain the age of four or five years. Before this period no shoes or stockings are used, the only garment worn being a short single petticoat of thin calico, and often, indeed, they are without any clothing whatever. During the rainy season, the lower extremities of the children are continually cold and damp, and as fire-places and chimneys are unknown, their garments are seldom dry, and, in this condition, they usually sleep on mats laid on a ground-floor. To these causes are to be ascribed the catarrhal affections so common to children, and pleurisy met with frequently in adults.

Asthma is a disease of rare occurrence in Monterey or in California; I have seen but two cases in three years. The Asiatic cholera has not as yet visited this place. During the season that cholera prevailed in California, it began in Sacramento Valley; we find it in San Francisco next, and proceeding to San Jose, passing in a southerly direction to the eastward of Monterey, to San Louis Obispo and Santa Barbara. None of the premonitory symptoms of this epidemic were ever present at this place. To what cause this exemption from this wide-spreading epidemic is due, is involved in mystery. But two cases of diarrhoea and dysentery are reported in my returns of sick for the past year. It will be inferred from the foregoing sketch of the diseases of this port and vicinity, that it is a position enjoying a high degree of salubrity, and also from the fact that there are no diseases of peculiarity or importance that promineney can be given to any class of affections, or any points of striking character can enter into this account.

Before closing this paper with a brief allusion to some of the diseases of females of this region, I will barely allude to one peculiarity I have observed in the diseases, not only in Monterey, but in all California, and that is, the extreme tendency to functional disturbance of the brain. What I allude to is, the fact that in diseases, often of a mild character, which elsewhere and in similar circumstances are unattended by the slightest mental aberration are, in California, often accompanied by impaired intellect, and sometimes delirium. It is owing, I think, to this peculiarity, that delirium tremens is found to follow very slight excess in drinking, which I before supposed to be entirely inadequate to produce this affection. A contrary opinion I am aware exists to some extent here, but I believe it is founded in error, and that all who have

studied this subject will agree with me, that no one can indulge in the use of spirituous liquors with the same impunity in California as elsewhere.

Insanity, it is well known, is very frequent in California, where, it is true, the predisposing causes exist to an unusual extent, in the excited condition of the country; but how much is due to the influence of climate remains yet to be determined. In this small town are five cases of confirmed insanity of long standing.

Diseases of Females.—The diseases peculiar to females are far more common in Monterey than any other class of disorders. Of these, the most usual are leucorrhœa, prolapsus uteri, and deranged menstruation. Those affections are more numerous in proportion to the population in Monterey than in any community I have ever known.

The two first mentioned are, I believe, owing to the mode of treating parturient women practised by the natives of this place. It is the custom in Monterey, when labour begins, to place the woman on a chair in the middle of the room; a rope is fastened to the rafters above her head, which she is directed to pull. Round her abdomen a broad towel or reboza is passed, the ends crossed behind, and intrusted to assistants, who are instructed to tighten it when the abdominal tumour descends during the pain, and *belay there* (as it were) until the arrival of the next, when it is hauled *taut* again, so as to hold on each time to the progress made, and not permit the usual ascent of the tumour after the subsidence of the pain. With the same view, a strong man is frequently seated behind the woman, who, with his hands placed on her abdomen, makes strong pressure downwards at each pain, with the idea of assisting, by mechanical force, the contractions of the uterus. All this time, the midwife (generally some old woman) is seated in front with one, and, if possible, both hands in the vagina, making all the traction in her power. When the woman and assistants are somewhat fatigued, she is placed upon her knees on the floor, but without relaxing any of the means and appliances which would cause them to lose the advantage already gained.

These measures often prove fatal to both mother and child; usually, on the termination of the labour, the female is completely exhausted. From the injury done to the soft parts by the long and rough handling, ulceration and inflammation often ensue; thus laying the foundation of uterine and vaginal diseases, with displacement of the uterus.

Immediately after the delivery, and when the poor woman is nearly worn out, and in a more or less excited state, and the nervous system in an exceedingly susceptible condition, and disposed to receive strong impressions from slight causes, it is the universal custom for all acquaintances, however slight, to visit, with one accord, the new mother; so that her room will resemble an evening party; being filled with numerous guests, who do not hesitate to sit for hours, in loud conversation, and regale themselves in smoking paper cigarettes. When we consider how much lying-in women often suffer from not being kept in a tranquil and quiet state after confinement, and how important to her well-

doing is rest and exclusion of company, we may readily conceive the unfortunate result of an opposite course, and understand why more untoward circumstances happen with such women here than ordinarily.

Within the last four years, the influence of the intelligent physician, and a few American families, have made some improvement in these matters; but, as this part of the profession is still in the hands of the California midwife, much ignorance and superstition still exist throughout the country, to an extent that could scarcely be credited in other portions of the United States.

I have heard of many causes of impaired memory charged to the influence of California climates, but I have no certain evidence that this is true; yet, judging from the complaints made by Eastern friends, and the many instances of entire forgetfulness and disregard of the strongest of earthly ties by those sojourning in California, one might readily imagine that some potent spell, like the Lethæan waters of ancient story, was exerted by the zephyrs of the Pacific coast.

Although there is nothing of peculiar interest contained in the above sketch, which is the result of a residence of more than three years in Monterey; yet, as so little is really known of that locality, I have deemed it proper to contribute something, however imperfect, to add to our information of this interesting country.

SAN DIEGO MISSION, CALIFORNIA, *December 17, 1852.*

ART. VIII.—*On Stomatitis Materna*. BY WILLIAM H. BYFORD, M. D.,
Professor of Theory and Practice of Medicine in Evansville Medical
College.

As its name implies, this is a disease peculiar to those who are, or who are about to be, mothers, and is attended with painful inflammation of some portion of the lining membrane of the mouth. Although inflammation of the mouth is a symptom considered necessary to the full development of the disease, it must be regarded only as a symptom attending a general disorder of the whole system, or at least of some one of its constituents, perhaps the blood, which by its own peculiar modification implicates the solid parts in an action which they would not otherwise take upon themselves. This view of its pathological seat, it is believed, is the only one which will enable us satisfactorily to account for many of the phenomena presented, both in respect to the time of occurrence, and the particular solid tissues mostly affected. What this modification of the condition of the blood may be, we can only conjecture; as, in the present state of science, the investigations, which have extended only to the physical and chemical qualities of this fluid, do not afford the means of

ascertaining with any exactitude many of the most important changes which occur in it.

What are its vital conditions under varied circumstances, or indeed in any case, perhaps, is entirely beyond the reach of our philosophy, and it may be, will ever elude the imperfect means of search attainable by the ingenuity of man. A deviation in the vital, physical, or chemical properties of the blood from the healthy standard, must produce effects commensurate to the importance of each, and the amount of departure from this normal state.

That there are many reasons for believing this disease to be the result of some kind of modification of the conditions of the blood, I think will be admitted by most who have thought much upon the subject. The nature of the alteration we do not now know. Could we see all the vital and chemical changes produced in the blood—for changes there must be—by the efforts of the mother's system to sustain the child *in utero*, and the necessary mutation after the process of gestation is completed, compared with its condition in health and during lactation, we might receive some light upon the subject. I apprehend that we should be taught by such instructive lessons that the character, in some respects, of change in the blood itself, would be continuously the same from the commencement of gestation to the termination of lactation; and that the effect upon the mother's energies would correspond with the quantity of the peculiar change growing out of the increasing wants of the being dependent upon her for support. And as anemia is one of the results of protracted lactation, this tendency may begin with the commencement of pregnancy. Patients not very competent to the task of childbearing and its consequences, however, often become enfeebled and thin in gestation, and continue to become more so until they succumb, or are relieved from the discharge of these duties. The same nourishing principle called for to sustain the child *in utero*, is still demanded to nourish it at the breast; and it may be a secretion in the first place, similar in character (possibly identical) to what it is in the last. This demand increases as the child grows in size and vigour, and must consist of the proximate elements of nutrition so nearly vitalized as to require none in the first instance, and in the second, but feeble powers of digestion to render them subservient to their appropriate uses. If the pathological condition of the system is that of anemia resulting from pregnancy and lactation, there must be some peculiarity about it, judging from its effects, differing from anemia arising from other causes. And this may be the peculiarity, viz., a greater paucity, comparatively, perhaps, than in any other case of anemia of the material elements expended in the process of nutrition. And this may be the case without any of the ordinary signs of anemia. From what has been said above, it may be inferred that pregnancy, as well as lactation, is regarded by me as one of the causes of stomatitis materna. Several cases have occurred in my practice in women who were pregnant with their first child, which continued throughout the remaining time of gestation and

during lactation. I remarked that all the patients in whom these cases occurred were very young, of scrofulous diathesis, weakly, and laboured under most of the symptoms of anemia resulting from other exhausting influences, such as pallor, languor, shrunken veins, &c. I think that without other influences, pregnancy and lactation are not sufficient; and hence I believe that we must look for extrinsic causes. And these, probably, are both endemic and epidemic. By the former, I mean such morbid agents as are operating in the immediate locality of the patient; for, so far as I can learn, it is not of very general prevalence. By the epidemic influence, I mean the extensive change which has taken place in the general cast of the diseases of the West, especially along the course of the large rivers, from the ordinary endemic bilious fevers, and other miasmatic diseases, to the typhoid or continuous type, attended for the most part with affections of the mucous membranes, particularly of the alimentary canal. This typhoid diathesis is so remarkably developed in many parts of this extensive tract of country, that it has usurped the place of the former diseases, or moulded them into a different type. The western physician of many years experience, can remember that in many extensive sections of country nothing was known from observation, until within a few years past, of the typhoid or continued fever. Taking these things into consideration, I think it may be inferred that a wide-spread epidemic influence has been for some time exerting its force upon the inhabitants of this portion of the country, producing a condition of the system in which there is a strong proclivity to disease of the mucous surface; and operating upon the maternal system, its effects are the tendency to this disease; just as in particular seasons, and under certain circumstances, there is a tendency to puerperal fever. There are three different varieties of this disease. The first includes the most simple variety, so far as local symptoms are concerned. It is characterized by superficial and often diffused inflammation of the mucous membrane of the mouth, which may be confined to a small part, as the lips, or end of the tongue; or it may spread throughout the whole cavity of the mouth and fauces. The parts, upon examination, are found of a scarlet red colour, and dry; but as a general thing not much, if at all swollen. This appearance may be of transient duration, lasting, probably, only for a few hours; more generally, however, for several days, when in a great many instances it completely subsides, leaving the patient to all appearances quite well, with the exception of a little debility. In some rare cases the subsidence is not so complete, and amounts only to a very considerable remission of the soreness and distress. After an uncertain length of time—in slight cases longer, and shorter in severe ones—the inflammation returns, and runs a similar course to the former paroxysm. The paroxysms usually commence suddenly, with a sense of burning or scalding in some part of the mouth—oftener perhaps on the end of the tongue than elsewhere—which rapidly spreads, involving the parts continuously, until the whole mouth feels like it had been scalded, and the acts of mastication and degluti-

tion are intolerably painful. The subsidence of the pain and suffering is as sudden and gratifying as it was unexpectedly afflicting.

The second variety seems to engraft itself, as it were, upon the diffuse and superficial inflammation of the first; for, in addition to the appearances above described, a crop of vesicles are scattered over the whole or a part of the inflamed surface. These are often so clear and transparent that without attention they may be easily overlooked; sometimes, again, they have an aphthous appearance, and are quite obvious. The duration of this eruption is about eight or ten days; but it often lasts much longer, and then consists of successive crops. The symptoms, though they subside sometimes as completely as in the former variety, the respite from suffering, is commonly shorter and less complete. In the progress of a case, it is not unusual for the appearance described as the two varieties to alternate with each other.

In the third variety, the whole force of the paroxysm is concentrated upon a small part of the surface, always, in my experience, upon the tongue. Either upon its side or inferior surface I have seen it begin by a fissure gradually leaving an ulcer, from a hardened tubercle, from the bursting of a vesicle, or simply from an inflamed point. However it may commence, a rapid ulceration destroys the substance of the tongue, until a ragged notch has half completed its amputation. Suddenly it ceases, the cavity granulates, fills up, and heals, but the organ is left distorted. The patient flatters herself, upon the cessation of each paroxysm, that some newly-applied remedy is an all-sufficient sanative against the ills which she knows, by past experience, is in reserve for her. But, unfortunately, with a returning paroxysm, she finds her suffering unmitigated. Notwithstanding this fearful ulcerative process, this variety is less dangerous, and affects the constitution more mildly than either of the other varieties. A very important consideration in connection with the local manifestation of the disease is, that the two first varieties are migratory, travelling from the mouth along the surface of the mucous membrane to all the neighbouring cavities, down through the pharynx and œsophagus to the stomach; and thence through the whole extent of the alimentary canal, frequently finding permanent lodgment in some section of this extensive tube, and destroying the patient by originating chronic gastritis, duodenitis, ileitis, &c., or passing through the larynx, trachea, and into the bronchia. And if it does not, by establishing inflammation in some portion of these tubes, exhaust the patient, it may awaken into existence the more fatal affections of the substance of the lungs. It has also followed the nasal passages into the different cavities of the skull, or maxillary antrum, and there induced permanent inflammation. At other times it travels through the Eustachian tube to the tympanum, and thence to the mastoid cells. And I have seen one case where permanent deafness of one ear and exfoliation of bone from the mastoid process occurred. The most common course for it to take, is into the alimentary canal and lungs. It is very prone to fasten fatal disease upon the lungs when it is allowed to run on for any considerable length of time.

The date of the commencement of the above local symptoms is various. Hitherto, I believe, it has been considered that they date from some time during the term of lactation, especially where the subject is young and with the first child, but that they might reappear during subsequent pregnancies; and that they never are present in pregnancies unless the patient has been subject to the disease during some previous term of lactation. I am not certain that this is the general rule. But it is unquestionably the fact that a woman will be more likely to experience such trouble after having once laboured under the malady.

Accompanying the above array of symptoms are those of a general character. Perhaps, of all others, disorder of the digestive organs is the most prominent, as well as first in importance. Difficulty of deglutition, indigestion, and diarrhoea, form a part of these. All of these symptoms, like the local, are more or less paroxysmal; the diarrhoea particularly. For some time it will harass the patient, exhaust the resources of her system, and prevent rest, and then disappear; and allow her to recruit strength, to be prostrated again by its return. Indigestion is, probably, more or less constantly present. Difficulty of mastication and deglutition vary of course with the local symptoms. Emaciation is also often considerable, and generally keeps pace with the digestive disorders. Many other general symptoms might be enumerated, but as they are not peculiar or so important, they will not be noticed. It is sufficient to be aware that such extension of the inflammation does occur, &c.

The first step in the treatment of any disease should be the removal of the cause, when practicable. In cases where more than one cause contributes to the production of disease, the removal of one of them may so far interrupt the chain of impressions as to accomplish a cure. Occasionally, this is found to be the case in the disease under consideration. The patient, by a change of her residence for the balance of the time of lactation, may get quite well. This, however, is not generally the case. And in all instances where the objections are not too weighty, the child should be removed or transferred to another nurse. I have seen so many cases of unfortunate terminations, and regard the condition of my patient so uncertain while labouring under this ubiquitous inflammation, if I may be allowed the term, in which, without any warning, the precincts of some vital organ is involved, and it becomes the seat of destructive organic alteration, that I deem it a matter of great importance to take *immediately* the most effectual course within my knowledge to place the patient under the most favourable circumstances. After an experience of nine years' duration, I cannot feel quiet while my patient, if at all seriously affected, continues to nurse her child. I am thoroughly convinced that, in many instances which I have known to be followed by fatal secondary diseases, had the connection between the sore mouth and these been properly appreciated, and the causes of it understood, the mother's life would not have been sacrificed in a useless attempt at nursing; and I am well assured that, with the best management in grave cases, there is much more likelihood of

the patient becoming worse than better while she nurses her child. I will also say that, in some cases, weaning will not of itself cure, although this is the general rule; and so soon as any of the serious complications are lighted up, little is to be expected for them from this measure. Should the case not yield to weaning, and change of residence, or should they be impracticable, or from any reason not be adopted, all that can be expected from medical treatment is that it may *palliate* the symptoms, and perhaps prevent the disease from advancing. The most obvious and urgent indication for treatment will be found in the emaciation and debility. We must meet them as best we can with tonics and proper diet. Animal food, in as liberal quantities as the enfeebled digestive apparatus will allow, must be given. Milk, eggs, and mutton I have found to agree best. First upon the list of medicines may be placed cod-liver oil, which I have been in the habit of recommending for the last three years. It must be persevered in during the whole term of lactation, and as long after as any traces of the disease exist. The dose should be regulated by the capacity of the stomach, as much being given as can be retained. This remedy has the advantage of any other alterative and tonic in its soothing effects upon the irritated bowels when this difficulty exists. This is a circumstance of the utmost importance, as we are often interrupted in the use of remedies by diarrhoea.

Where there is no diarrhoea, or between the paroxysms of it, the most useful tonic next to the oil is the carb. of iron, prepared and used according to the following formula: R. Carb. potass. sulph. ferri, āā ʒiiss; gum. acacia mucil. ʒiv. Pulverize the potass, and dissolve in the mucilage; then pulverize and add the sulph. of iron; mix well in an earthen mortar. Dose, half an ounce three times a day, gradually increasing to as much as the stomach will bear. For persons very much reduced, of lax habit, brandy or wine taken during meals will sometimes do good. Very often they both disagree, when we may substitute ale, porter, or beer, among the malt liquors. Vegetable tonics and aromatics are useful in certain cases, where the iron disagrees with the stomach.

The diarrhoea, so exhausting to the patient and perplexing to the physician, should claim our attention also. Indeed, while this symptom exists, our efforts to restore the lost energies of the system and natural condition of the blood, from our inability to introduce effective tonics, will be futile.

Entire quietude, while this is in active existence, in the horizontal posture, should be strictly enjoined. Morphia, combined with acetate of lead, will often control it very completely. We may replace the latter remedy by sulphate of copper or nitrate of silver. These latter, when given with solid opium, often answer an excellent purpose in quieting the irritation of the bowels, and acting also as tonics to the system. Astringent injections and suppositories may be used. Indeed, in some instances, all our resources will be vainly tried to relieve this symptom. A great variety of local remedies has been put in

requisition, and all have enjoyed more or less praise. I have used with benefit a solution of sulphate of copper, of different degrees of strength, the vinous tincture of golden seal, a weak solution of nitric acid, sulphate of alum, borax, and sulphate of zinc; some of them agreeing in one case, and some with another. Perhaps among them all, a solution of sulphate of copper did good most frequently. The only way I have ever been able with certainty to adapt the local remedies to different cases was by trying them.

In conclusion, I wish to embody, under a few distinct heads, the result of my experience and reflection upon the subject. 1st. It is a disease of pregnancy and lactation, more frequently appearing while the patient is in the discharge of the last-named function, especially should it be the first child. Certainly, however, often making its appearance during pregnancy with the first child. 2d. The condition of blood probably gives origin to the local manifestation of the disease. This condition of the blood may arise from the abstraction, to too large an extent compatible with the health of the mother's system, of such principle or principles as may be necessary for the support of the child, either through the placenta or the mammæ, depraved digestion and assimilation, and other depressing circumstances connected with certain epidemic visitations and endemic tendencies. 3d. The local symptoms are irregularly paroxysmal. 4th. It makes its appearance in three distinct forms, viz. erythematous, vesicular, and ulcerative inflammation of some part of the mouth. The former two generally covering the whole internal surface of the mouth; the latter usually confined to the tongue. 5th. The first two varieties are migratory, spreading, in different cases, to all the mucous membrane continuous with the cavity of the mouth; such as that lining the air-passages, the lungs, the digestive surface, the cells and cavities of the cranium, maxillary nasal sinuses, &c.; thus producing consequences varying in gravity and other characteristics with the constitutional tendency of the patient and the amount and seat of the inflammation set up on these surfaces. 6th. The prognosis is doubtful even in cases that seem favourable, from the complications that may arise by its spreading character. 7th. That in cases of gravity, medicine will avail but little without a change of residence or nursing, or both. 8th. Cod-liver oil and tonics, especially the ferruginous, and nutritious diet, are the main hope of success in the simple form. The complicated, of course, will demand remedies suited to the circumstance at the time, and calculated for the same diseases when produced from other causes. 9th. Local remedies are merely palliative.

ART. IX.—*Coloured Prismatic Crystals in Blood-Globules.*

By BENJAMIN S. SHAW, M. D., of Boston.

IN examining blood from the finger, I found coloured crystals within the blood-globules, described by Kölliker, as existing in the blood-globules of the spleen, &c., of various animals.

The blood was taken from the finger of a young man of twenty-two years of age, an officer in the army, apparently in perfect health, and who had dined heartily two hours before. It was diluted with an equal quantity of water, and a few drops placed under the microscope. The globules presented the usual appearance at first, but after about one minute, as the fluid began to evaporate, yellowish-red crystals appeared in them, having the form of four-sided prisms, with angles and edges well defined. There was generally one crystal in each globule. In some globules there were two, and these crossing each other. A few free crystals also were seen floating about in the more fluid portion. The globules themselves seemed to have their natural colour, and presented no other unnatural appearance than this. The white globules also were natural and in no excess of numbers.

These crystals have been found by Kölliker and Funke in the blood of the splenic vein, and in the spleen substance in many animals; also, in the *Cereæ fluvialis*, in the blood of the liver, kidney, and heart. They have, until recently, been seen only when a few drops of blood have been evaporated on a glass; but Funke has now succeeded, with great difficulty, in obtaining them in large quantities by the action of water and alcohol through membranes. Lehman thinks they are formed by the union of an albuminoid and a mineral substance, since they present, with the usual reagents for albumen, the same results as albumen.

ART. X.—*Sequel of a Case of Saccharine Diabetes.* By CHARLES FRICKE, M. D., of Baltimore.

IN the number of this *Journal* for July, 1852, I reported a case of saccharine diabetes, at that time under my care, with tabular observations of its pathology, and the results of treatment. The patient since that time has died; and I have thought that a brief notice of the subsequent course of his disease, and the results obtained by a *post-mortem* examination, might be interesting.

The amount of urine passed by him increased gradually, although still

influenced to some degree by medicinal agents, and reached its greatest amount December 5. On that day, he passed eight hundred and ninety-six ounces, equivalent to fifty-six pints, or seven gallons. And the amount of sugar contained in this enormous quantity of fluid was estimated at four pounds ten ounces. He was at this time very weak and emaciated, but not confined to the hospital. During the fall, he suffered much from abscesses on the shoulder and backs of his hands; but after the invasion of cough, from which previously he had been exempt, their appearance ceased. The pus from these abscesses always contained sugar.

On December 30, he entered the hospital, complaining of cough. A few slight râles were discoverable in the right lung, but nothing else. His urine had now diminished to two hundred and sixty ounces daily. During the next week, his cough became troublesome, and some rudeness of respiration was discoverable. On the 17th of January, bronchial respiration and bronchophony were well marked throughout the upper third of the right lung, and a few days afterwards the rusty expectoration of pneumonia made its appearance. At this time he lost his relish for farinaceous food, and confined himself principally to meat. At this date some blood was taken from him by cups, but a careful examination could detect no sugar in it, although this substance was still present in his expectoration. He died January 26; the quantity of urine decreasing daily. On the 25th, he passed but one hundred and thirty ounces, containing only four ounces of sugar.

The following table is made up of the averages of sixty-seven examinations:—

Date.	Average number of analyses.	Quantity of urine in ounces.	Quantity of sugar passed in grains.	Quantity of sugar in food, in grains.	Medicine taken.	Stools.
From March 6 to April 4	5	570	14,790	25,500	{ Ergot grs. iij; Strych. 7	{ 3
From April 6 to May 4	9	448	12,123	25,500	None	2
From May 5 to May 17	7	545	17,447	25,500	{ Creosote gtt. ij, twice daily	{ 3
From Aug. 15 to Dec. 5	13	752	28,379	27,976	None	3
From Dec. 12 to Jan. 17	24	226	6,394	11,080	Morphia $\frac{1}{4}$	3
From Jan. 17 to Jan. 26	9	157	4,191	10,212	None	1

Autopsy, ten hours after death. Body very much emaciated. On opening the thorax, the two upper lobes of the right lung were found to be consolidated from tubercular infiltration, and a pneumonia which had passed into the second stage. On cutting into its substance, two or three recent cavities, filled with pus, varying in size from a pea to a small marble, were discovered. In other respects, these organs were healthy. The liver was of its natural size and appearance. The kidneys one-fourth larger than usual, rather flabby,

but not congested. All the other abdominal organs presented their natural appearance. The bladder contained about $\frac{3}{4}$ of clear urine, but no sugar could be detected in it.

The blood from the hepatic vein, from the right and from the left side of the heart, was examined with a view of detecting sugar. In the first only was it at all perceptible. Thus: the blood was first dried, then boiling alcohol added, and filtered; this evaporated, and the residue dissolved in distilled water. To this Barreswil's liquor was added, and by boiling a slight canary tint was made evident.

BALTIMORE, March 3, 1853.

ART. XI.—*Mode of Reducing Dislocation of the Thumb.* By JOHN DOE, M. D., of Cabot, Vermont.

HAVING had occasion to reduce a dislocation of the thumb several times, when the first phalanx is thrown upon the dorsum of the metacarpal bone, and having never encountered any particular difficulty in effecting it, it has been a cause of surprise to me that the method I am now to describe is not more generally known. There is not an English writer on Surgery, from Sir A. Cooper to Fergusson, nor an American one, so far as I know, that alludes to this method; and, if we are to judge from an article by M. Demarquay, published in the *Medical News*, of May, 1852, and accredited to the *Bulletin de Thérapeutique*, it might well be presumed that the French are also innocent of practising or teaching it.

The common method of reducing this luxation is, as is well known, to flex the thumb, fasten upon it a tape with a clove nitch, and with this make extension. If this, or more violent means do not succeed, we are directed either to abandon the attempt at reduction, or what is still worse, effect it by making incision, or by amputation of the end of the metacarpal bone. Extension has sometimes been persevered in to such a degree that the soft parts have been lacerated, or the thumb actually torn off; and in *Braithwaite's Retrospect*, part xxii., M. Blandin describes a forceps well calculated to do this.

In this dislocation, the phalangeal end of the metacarpus projects into the palmar surface of the hand, forcing itself between and through the flexor muscles of the thumb, which form a loop around the head of the bone. Extension made upon the thumb makes this loop more tense; and, as the metacarpal end of the first phalanx is broad and considerably flattened on its palmar aspect, it must be apparent at once that the difficulty of reduction is directly as the amount of extension. There is good reason to believe that extension would never succeed in these cases without rotation. The principal indication in treatment here, is to relax the flexors forming the loop, so that the

end of the phalanx can be pushed forward into the loop, and by carrying the muscles forward with it disengage the head of the metacarpus. This can be done in the following manner:—

Having previously warmed the hand, if cold, in warm water, the surgeon should seat himself by the patient, facing in the same direction, and upon the same side with the injured thumb, and place the hand upon his knee. Tip back the thumb upon the dorsum of the metacarpus to more than a right angle, or so as to form a slightly acute angle with the latter bone; place both index fingers against the ball of the thumb, and the ends of both thumbs against the dorsum of the disarticulated end of the phalanx; now by pushing forward forcibly, get steadily against the phalangeal bone with both thumbs. Reduction will generally be effected on the first trial, and almost instantly.

The writer claims not the honour of originating this method, but supposes it to be adopted by many surgeons in this country.

REVIEWS.

ART. XII.—*A Treatise on Tuberculosis, the Constitutional Origin of Consumption and Scrofula.* By HENRY ANCELL, late Surgeon to the Western General Dispensary, &c. &c. London, 1852: 8vo. pp. 779.

TUBERCULOSIS is regarded by Mr. Ansell as strictly a blood disease. He refers to a primary morbid condition of the blood all the local tubercular affections. He goes yet a step farther than most other pathologists, since he believes in the existence of tuberculosis as a disease of the blood, independently of any local deposit. He says in the preface:—

“Since the discovery of the stethoscope, we have habituated ourselves so much to depend upon the presence or absence of tubercles as the sure and only indications of the presence or absence of the constitutional disease, that we have nearly lost sight of the possibility of the existence of the one without the other; and yet, if we only watch tuberculous subjects closely, we may observe them for many months or even years, with the general symptoms of tuberculosis, without the slightest indication of local disease, but ultimately dying from tubercle rapidly developed in several organs at once; or we find young persons affected with scrofulous joints, who take to their beds without a sign of internal tuberculization, but soon exhibit all the symptoms of the general disease in its progressive form; until ultimately tubercle is developed in the lungs, the mesentery, or other organs.”

Hence it may be seen that the subject is treated on an original plan; the prevailing idea is carried, also, systematically throughout the work; the symptoms, causes, treatment, &c., being all referred to, and made dependent upon the original blood disease. Mr. Ansell was already known as a zealous cultivator of pathological chemistry; he published, in the *Lancet*, a “Course of Lectures on the Physiology and Pathology of the Blood,” and, subsequently, defended Liebig’s doctrines in a series of commentaries, entitled, “*Liebig and his Reviewers.*” Practically familiar with the processes of medical chemistry, endowed with uncommon powers of generalization and analysis, and enriched by a long clinical experience, our author was certainly well fitted to carry into effect his long-cherished design of systematizing the pathology of tuberculous and scrofulous diseases. Of the identity of these, he expresses strongly his conviction; and, consequently, treats of them throughout under the same designation. He considers *scrofula* as merely a form of tubercular disease, but yet essentially the same as it, and due to the same morbid condition of the blood, whatever that may be. Upon examining into the sources from which are derived the results used by the author to characterize the actual condition of the blood in tuberculosis, we find that these are taken from the analyses of Andral and Gavarret, Nicholson, Glover, and Fricke. Now the blood, analyzed by these writers, was taken from persons with scrofulous diseases and with incipient and confirmed phthisis. It is in vain to conceal the fact that here may be important sources of error. If, for instance, we turn our attention to the scrofulous affections, we find so many important dissimilarities in form, seat, and general pathology from the strictly tubercular diseases, that we cannot avoid feeling much doubt of the propriety

of classing them with these latter. And, if we go further, and inquire concerning the anatomical characters of these two forms of disease, we discover that a certain number are really tubercular (*i. e.*, characterized by a deposit of tubercle), while many are not. Whatever resemblance there may be between the constitutional symptoms of two diseases, very certainly the only true basis for a nosological distinction is to be found in the anatomical lesions.

Mr. Ancell says (p. 624): "The local products of scrofula and of indisputable tubercular disease have the same anatomical elements. Both are subject to the same metamorphosis of softening and cretification." If we examine, however, the diseases which come under these designations, we find that they require to be divided into two classes, one of which comprises those in which no local deposit of tubercle takes place, and the other where it is supposed invariably to be present. The first class includes what may be properly termed *scrofulous* diseases, for want of a better name, and in the second are found, with the undoubted tubercular affections, a certain number more generally called scrofulous. It is of these latter that the question arises, are they tubercular or not? We allude to the diseases of the external lymphatic glands and of the bones and joints occurring in persons of a strumous habit. The only correct answer to this question is found in the anatomical changes of the parts affected.

In the external lymphatic glands there are three very distinct pathological conditions. In one, the substance of the gland is redder, firmer, and more developed than in health; and at a more advanced period its tissue assumes a granular aspect, and becomes of a tough, fleshy consistence. This is the form of scrofulous swelling most amenable to medical treatment, local or general; it may gradually disappear, and leave no trace of its existence. It contains no unorganized product incapable of resorption; and, strictly speaking, is nothing more than a chronic engorgement of the glandular structure. This enlarged gland may, however, become the seat of an albuminous exudation, constituting a second form of disease. This albuminous blastema infiltrated through the gland is of a pearly colour, and resembles the gray tubercular matter found in the lungs. We are disposed to believe that in itself it undergoes no transformation. It constitutes that form of swelling which remains stationary for an unlimited period, proving rebellious to all the best-directed medical treatment, and only ulcerating from the effect of external irritation and violence, or from the deposit in it of the real yellow tubercle.

This latter, when grafted on the preceding form, or developed independently, forms the third variety of scrofulous tumours of the neck. Its proper termination is, of course, in ulceration; the chalky transformation being extremely rare. Hence, manifestly, it is erroneous to consider ulcerated glands of the neck as offering the type of *scrofulous* disease, as has been done by Phillips and others. On the contrary, we would place them, like Lebert, among the tubercular affections, excluding only a certain number, the first variety which we have described.

This same distinction may profitably be made among the diseases of the bones and joints, with regard to which, the terms scrofulous and tubercular are employed as convertible by many persons. It is, indeed, true that our knowledge of the condition of bones and joints thus affected rests upon no very sure foundation; a very great difference of opinion prevailing respecting the most important point in their pathology—the initial step in the disease, its true nosological character and location. Yet, we think, enough is known to show that tubercle exists in bone mostly in an encysted form, and that it makes its way, in a very gradual manner, either to the periosteal surface, or,

if in the neighbourhood of a joint, into it; but, as for tubercular *infiltration* of bone, its existence rests upon very insufficient demonstration, and is more probably inferred from an assumed analogy between the tubercular processes in the lungs and that in the bones. The only clearly demonstrated form is that of the encysted tubercle; while even here, it must be remembered that a purulent *foyer* may receive a membranous investment in the same manner, and is very probably often erroneously looked upon as tubercular. Yet, admitting the occurrence of tubercle in bone, there yet remains the far more frequent disease of *caries*; this may commence in the periphery or in the interior of the bone. It has no similarity with tubercular disease either in its progress or results; the pus and the detritus resulting from the decay and elimination of dead tissue having their own peculiar character, but in no respect like the tubercular product. The inflammatory process in a scrofulous constitution acquires a peculiarity which is perhaps more easily understood than defined, but which manifests itself in all tissues alike. The essentiality of scrofula and its peculiar physiognomy can be affirmed without our being able to show that it possesses any such constant product as have tubercular or cancerous disease. It bears with it always the same features, which can be recognized, whether it be in the organs of sense, the articulations, the skin, glands, or bones.¹ It may not be inappropriate to direct attention here to a fact fully established by cases reported by Lebert, in his classical work upon scrofulous and tuberculous diseases. We refer to the apparent inversion of the usual relation between the deposit of tubercle in the lung and the other parts of the body. The opinion of Dr. Louis, founded upon ample observation, and since fully corroborated by other writers is, that where, after the age of 15 years, tubercle is found in other parts of the system, we may look for it with confidence in the lungs. Yet Dr. Lebert reports cases in which the most extensive disease and disorganization of the vertebral column and other portions of the bony frame were found, while the lungs contained not a single tubercle, or but a most insignificant trace of it. Were we to admit these as instances of tubercular degeneration of bone, how glaring an exception would they form to the well-known relations of the disease. While it is desirable never to lose sight of the axiom that the proof of the presence or absence of the tubercular (or any other specific) product ought of right to rest upon physical demonstration by the microscope or by chemical analysis, yet neither of these appliances are, we venture to assert, in this matter more to be trusted than the unassisted senses. The extreme difficulty of discovering a few tubercular cells or of detecting by any chemical test the presence of tubercle in a mass of carious suppuration, containing the *débris* of bony, muscular, and ligamentous tissue, obliges us to have recourse to these methods of reasoning. Those who contend for the great frequency of tubercle in scrofulous diseases of the bones and joints, should rest their demonstration on less vacillating ground than these microscopic elements, about the worth of which no two pathologists can be found to agree. There is hardly a point in microscopic anatomy more debated than this one, and the opinions for or against the existence of characteristic tubercular cells are equally decided. Consider-

¹ Dr. Pepper has lately described (*Am. Journ. of Med. Sci.* April, 1852) a "scrofulous induration of the lung" itself, as distinct from the induration from tubercular deposit. His observations give additional force to the distinction we desire to make between the two diseases. If, indeed, the right of scrofula to share the sway, before almost undisputed, of pulmonary tubercle be fully established, we shall have much reason to be more sanguine of the results of medication. We may add that Dr. P.'s cases prove equally the *association* of the two diseases, and their independent character.

ing this question still unsettled, we believe that there is yet sufficient evidence, from the relations and laws of association of the two diseases, to establish the absence of identity between them. This view is maintained by Lebert, who is at the same time the most distinguished opponent of the doctrine of identity and the most zealous advocate of the possibility of recognizing microscopic tubercular elements.

We have designed merely to draw attention to the anatomical considerations which require that a distinction should be drawn between tubercle and scrofula. Much more might be brought to confirm this result from general pathological reflections, but our limits will not allow us to enter upon this discussion. Enough probably has been said to show that, in order to ascertain the condition of the blood in *tuberculosis*, whether latent or developed, it is not logical to make use of cases of *scrofula*, very palpable distinctions existing between the two. At the same time, we have no reluctance to assent to the result arrived at by Mr. Ancell, viz., that these diseases are characterized by a "defective vitality" in the blood. This is a point that hardly required demonstration, being so obvious that, with perhaps the exception of some devoted followers of Broussaism, it must command universal assent. The objections we have made are, therefore, not directed at the conclusion Mr. Ancell arrives at, but against the methods which he employs.

Mr. Ancell maintains that the blood is tuberculous before the development of local disease. He admits (p. 582) that "there is at present no known sign of diagnostic value by which tuberculous blood can be distinguished from that which is non-tuberculous;" but nevertheless considers that,

"In many cases, with a knowledge of the antecedent and present history of the patient, and a correct estimate of the causes of the disease, the diagnosis may be made, if not with certainty, still, with a high degree of probability; in other cases, with all this knowledge at our command, it is a problem of the greatest difficulty. It involves the determination, at any period of life, of the existence or non-existence of a tuberculous condition of the blood—of that quality which produces the mal-nutrition of the tissues, so fully described (p. 20), and which keeps the individual in continual risk of the exudation into the intimate structure of the vital organs of an imperfectly organized blastema."

Again (p. 112):—

"It occasionally happens that tuberculosis proceeds, in the adult, to the last stage of marasmus and a fatal issue without hæmoptysis, the aggregation of tubercle, or any obvious local affection. It frequently happens, also, that some local affection, as tubercles in the lungs, supervenes, but of so circumscribed an extent that it interferes little with the functions of the organ or the general symptoms of tuberculosis, or of the tuberculous predisposition, and, from hygienic or other causes the general affection subsides, and nature renders inert the local mischief by a cretaceous formation or a fibrinous deposit."

These extracts show pretty clearly the author's prevailing idea, that tuberculosis is a disease of the blood, and tubercle its local manifestation. Hence, he desires to anticipate the occurrence of local disease by arresting it in its primary phase in the tuberculous predisposition. But here we are met by the difficulty of accurately knowing where the tendency ends and the disease begins. The author admits that there is no clear line of demarcation, and says, also, that the predisposition does not necessarily pass into disease:—

"Many, having been deemed consumptive throughout life, from having exhibited this constitution in a well-marked form, have nevertheless attained longevity, and died from some other malady." P. 59.

We find the *diagnosis* of the tuberculous predisposition and of tuberculosis

(a more advanced stage of the predisposition, but still anterior to the deposit), described in the first two chapters. The description of the former corresponds with the ordinary portrait of the scrofulous constitution. The signs and symptoms of tuberculosis are distributed under the following heads (p. 64):—

- “(1.) Anemia.
- “(2.) Atrophy; *a*, attenuation of the mucous membranes; *b*, attenuation of bloodvessels and hemorrhage.
- “(3.) Direct debility; *a*, of the secretory functions; *b*, of the digestive; *c*, of the circulation and the involuntary muscular functions; *d*, of the respiratory functions; *e*, of the function of voluntary motion; *f*, of the nervous functions; *g*, of the generative functions.
- “(4.) Diminution of the power of sustaining the animal temperature.
- “(5.) Febricula.”

It will readily be seen that this list is open to objection, on the ground that the presence of tubercles being not always ascertainable by our means of examination, even in cases where they may exist, in some organs, in great abundance, there is an impossibility of determining the share which the local deposit may take in producing the phenomena above enumerated. As a general description, however, of the symptoms attending the development of tubercular disease, the five sections of this chapter are very interesting, containing a great deal of information, evidently the result of close inquiry and observation.

In the third chapter, the *tuberculous deposits* are described. Mr. Ansell agrees with Lebert and Dr. H. Bennett, in regard to the existence of characteristic tubercle corpuscles. The detailed history of tubercle is given under the heads, of its seat, origin, physical and chemical characters, and transformations. All of these subjects are treated of at length, and ably handled. Mr. Ansell does not consider the gray granulation as a phase in its development, through which the tubercle must necessarily pass. He speaks of one form of gray granulation as a “product of chronic pneumonia independent of tuberculosis,” and at the same time of a gray tubercular infiltration as distinct from this. If we understand the language rightly, the author’s opinion is that there are two forms of the gray tubercle, the one occurring independently of inflammation, the other in an infiltrated state, the product of chronic inflammation in tuberculous subjects, which becomes the nidus for the deposit of the yellow or crude tubercle. It will be seen that the author differs, on this point, both from those pathologists who consider the granulation as *sui generis* and incapable of transformation, and from those who, following the example of Laennec, consider the gray miliary tubercle as the common parent of all varieties of the tuberculous deposit.

Mr. Ansell, in the next chapter, gives a comprehensive account of the special pathological anatomy of tuberculosis. The words scrofulous and tuberculous are made convertible throughout, so that many diseases which to us appear to have no tubercular character whatever, as various cutaneous eruptions, subcutaneous abscesses, &c., are ranked with the true tubercular diseases. But, overlooking this circumstance, we find, in this portion of the work, a very complete account of the condition of all the organs or structures affected by tubercle, embracing the results of the most recent observations. Before taking leave of this portion of the subject, we must give, as an illustration of the facility with which so eminent a pathologist as the author can be deceived by fanciful analogies, the following extract, quoted by Mr. Ansell as an instance of “universal tuberculosis of the bones:”—

“The exostoses are in some places two inches long; the majority of the tubercles, when cut into in a fresh state, exhibited the usual ‘gray semi-trans-

parency,' and the internal viscera were not affected. The bones of the head alone were free; the spinal column and sternum were dotted all over with tubercles, the ribs on the right side especially; the second, third, and sixth presented large elevated tubercles. In the tenth rib there was a large excavation; and in fact all the ribs were tuberculous, as also the *os innominatum*, and the whole lower extremity. Numerous other cases are described."

We pass over the very elaborate pages devoted to the *causes* of tuberculosis, and come to the author's views upon the *treatment* of tubercular disease, or rather of tuberculosis. He discusses very fully the rules to be put in force against it. His aim is "to cure the tuberculosis, and thereby prevent the deposition of tubercles, or to render them innocuous when deposited." The first object he desires to accomplish by discouraging the intermarriage of tuberculous persons, whether they be blood connections or not. Moreover, Mr. A. thinks that it may be adopted as a principle, that advantage results from the *crossing of temperaments*, when a constitutional affection appears to have its origin or essence intimately associated with any particular temperament. With the same view, he would also discourage precocious or too late marriages, marriages where there is a great disparity of age, and the union of paralytic, epileptic, lunatic, and other subjects of uncured or incurable nervous diseases. He would also prohibit cohabitation under the influence of the causes of the disease, and during early convalescence after acute affections, and "endeavours to insure the perfect cure of any blood disease which is likely to lay the foundation either of debilitated or tuberculous children." He thinks it of importance, also, to consider the period of conception in reference to the actual state of the blood, as "the vigour or feebleness of the offspring depend upon the actual state of health or disease of the father or mother at the period of conception." While our knowledge upon matters like these, which are mostly out of the reach of medical interference, must always remain to a great extent vague and conjectural, there still can be no doubt of the importance of a closer attention to them. Mr. A. admits the great practical difficulty of enforcing these excellent precepts. No doubt, if we could control the propagation of the human race, as we can that of the domestic animals, insuring by judicious crossing the best examples of vigour and beauty, the general well-being would be vastly enhanced; but it is unfortunately too plain that the influence of physicians is, in these matters, most insignificant. Worldly interest, ungoverned affections, and indifference to the future, warp the judgment and shape the conduct of the majority of mankind. Physicians are busy in repairing the evils which vice and heedlessness are daily creating anew; their assistance is not often invoked to check the polluted tributary currents of disease, but only to stay the ravages of the already swollen tide. It will always be so; and however sincerely we may unite with Mr. Ancell in his philanthropic desires, it appears to us that the task he proposes is beyond the powers of any physician to accomplish.

We discover nothing particularly worthy of notice in the author's observations upon the *treatment* of tuberculosis. His remarks and precepts, while both lucid and judicious, possess no intrinsic originality. He has collated, also, from the best authors, much valuable information concerning appropriate hygiene and treatment. The results of his industry will no doubt be widely used and appreciated, especially the tabular statements made out by himself, as well as compiled from other authors. Among these are included valuable tables, showing the mortality from tuberculosis (or from tubercular and scrofulous diseases), in various localities.

¹ "Pathologica Indica," by Allen Webb, 1848, p. 127.

The ever-present and characteristic feature of this interesting and voluminous treatise is, that tuberculosis is a disease of the blood primarily and ever. Were we asked how this fact is ascertained, we should be able only to answer, that the author does not claim to have discovered anything very peculiar in the condition of the blood beyond a probable diminution of its fibrine and red corpuscles; that this conclusion is obtained by analysis of scrofulous blood, as well as of blood from persons with confirmed phthisis, and is therefore open to objection, since the differences between these two forms of disease have been shown to be important. We believe that the actual condition of the blood in tuberculosis (*i. e.* before tubercle is deposited) is extremely difficult to ascertain; since tuberculosis, as the author understands it, is rather a problematical affair. Positive and reliable results can only be obtained by microchemical analysis, after the most careful exclusion of every malady not positively tuberculous. Till this is done, we may pin our faith to any plausible theory of the constitutional origin of the disease, with the sad conviction that we can expect but little from such sources in combating the worst of "all the ills that flesh is heir to."

M. S.

ART. XIII.—On Rheumatism, Rheumatic Gout, and Sciatica; their Pathology, Symptoms, and Treatment. By HENRY WILLIAM FULLER, M. D., Cantab., Fellow of the College of Physicians, London; Assistant Physician to St. George's Hospital, &c. &c. London, 1852: 8vo. pp. 403.

THERE are few diseases of such frequent occurrence as rheumatism, and of equal importance—whether viewed in reference to the amount of suffering it gives rise to, or the serious and often fatal results by which it is not unfrequently followed—in relation to the true pathology and treatment of which there exists greater uncertainty. This has, no doubt, arisen from the fact that the term rheumatism has been applied to a variety of affections, all marked alike by intense and obstinate muscular or articular pains, but differing essentially from each other in their character, origin, progress, and results, and each demanding for its cure a distinct course of treatment.

That the disease to which the term rheumatism is most generally applied, and to which it would be well invariably to restrict it, is dependent on a vitiated condition of the blood, we think there can be little doubt. Many of its leading and most characteristic phenomena are characteristic of an affection produced by a morbid cause existing in the circulating fluid.

"Its attacks are ushered in by premonitory fever; its local symptoms are erratic, and yet remarkably symmetrical in their arrangement; the heart, the lungs, and other internal organs are affected, and when metastasis occurs, the constitutional symptoms are such as are met with, under similar circumstances, in diseases known to be connected with a vitiated blood."

There is, in fact, a strong analogy between gout and rheumatism.

"So curiously do these two disorders coincide, so imperceptible in certain cases is the transition from the one to the other, that there is no little difficulty in distinguishing between them. In both, an hereditary taint may frequently be traced; in both, the fever is out of all proportion to the extent and severity of the local mischief; in both, the joints are the parts principally affected, and the inflammation, which is of a peculiar nature, observes a remarkable sym-

metry in its attacks; in both, internal organs are often implicated; and in both, anomalous symptoms of a similar character occur whenever metastasis takes place. And not only so; their affinity becomes even more apparent when their history is more closely and accurately examined. For it is then found, that whilst children of gouty parents are peculiarly subject to attacks of rheumatism, the offspring of a rheumatic stock no less frequently show symptoms of that hybrid disorder, rheumatic gout, and, in some instances, of unequivocal gout."

The quoted sentences, given above, are from the introductory chapter of Dr. Fuller's *Treatise*. To the general correctness of the statements set forth in them, as well as of the following summary of the views of that gentleman in relation to the pathology of rheumatism—employing the term in the restricted sense, already referred to—we subscribe.

"Cold and other external agencies are only predisposing and exciting causes of rheumatism, and the primary, proximate, or essential cause of the disease, is the presence of a morbid matter in the blood, generated in the system as the product of a peculiar form of mal-assimilation, of vicious metamorphic action. This poison it is which excites the fever, and produces all the pains and local inflammations which are often found associated in an attack of rheumatism. If the rheumatic virus be present in small quantity only, it may cause little more than wandering pains in the limbs, and may scarcely induce any perceptible fever, whilst, if it exist in larger quantities, it scarcely fails to cause febrile disturbance, and to excite inflammation in various parts of the body. In that respect, however, its effects are found to vary in different cases. Sometimes, though it cause great febrile excitement, its local agency may be confined to the production of external, articular inflammation; at others, it may fail to produce arthritis, but may give rise to acute inflammation of the heart; and at others, again, carditis may be one only out of several internal inflammations, which it sets up coincidentally with extensive articular mischief. Moreover, there appear good grounds for believing that as in some cases it gives rise to excessive febrile disturbance for days prior to the accession of articular inflammation, and repeatedly without exciting inflammation of the heart, so in certain instances it may excite the peculiar train of symptoms whereby rheumatic fever is characterized, without producing, from first to last, the slightest concurrent local inflammation, whether of the joints, or of the heart, or any other organ."

But, while we admit that Dr. Fuller has with tolerable accuracy sketched the leading outline of the true pathology of rheumatism, we must, nevertheless, insist that articular and muscular pains—often of a severe and protracted character, and simulating very closely those of rheumatism, are not unfrequently the immediate result of exposure to cold and moisture. Upon a careful examination of the cases in which these pains occur—the concomitant symptoms and ordinary course—the diagnosis between them and cases of genuine rheumatism is readily settled; still their occurrence, which we think cannot be denied, disproves the assertion made by Dr. Fuller, that "the phenomena produced by cold are totally unlike the symptoms of rheumatism." He admits, it is true, that cold and moisture combined may prove an active predisposing cause of this in common with many other disorders, or an exciting cause when a predisposition already exists. We have repeatedly observed the pseudo-rheumatic pains alluded to in those who neither before, nor subsequently, exhibited the slightest predisposition to rheumatic disease.

The *Treatise* of Dr. Fuller commences with an inquiry into the rheumatic diathesis, and the causes which influence its development. The hereditary character of the disease is first considered.

The hereditary disposition of rheumatism, though often overlooked or disregarded, does not admit, we think, of reasonable doubt.

"Circumstances," says Dr. F., "not unfrequently concur to render our efforts, to trace its hereditary character difficult, and often to make them unavailing, yet we cannot but feel surprised at the large number of cases in which its existence can be clearly ascertained. The records of the Consumption Hospital exhibit the operation of an inherited predisposition in little more than 24 per cent. of the cases there admitted; and the annals of insanity supply data to prove that its influence obtains in less than 13 per cent. among the inmates of lunatic asylums; whereas, among the rheumatic patients admitted into St. George's Hospital, I have traced it in nearly 29 per cent.; and M. Chomel distinctly ascertained it in half the cases admitted into the Hôtel Dieu. Nor is this the only evidence which can be offered in its favour. M. Roche has expressed his firm belief in its hereditary tendency; and Dr. Macleod, and other physicians of eminence in this country, have arrived at the same conclusion. Moreover, this hereditary tendency exists almost invariably in the cases which are earliest and most fully developed."

Dr. Fuller sets down the period of life during which rheumatism generally occurs as that between fifteen and fifty—few cases occurring either earlier or later in life. Reference is here had to the acute form of the disease. We have, however, observed well-marked attacks of rheumatism to occur quite frequently in young children; so frequently, indeed, during childhood, as to lead us to the belief that it is a more common disease in early life than is generally supposed. Dr. Fuller reports sixteen cases as occurring in patients between five and fifteen years of age. In one instance only was the patient under the age of ten. He has had, however, under his care at the hospital, a child only eight years old, suffering from dropsy and diseased heart, the result of two attacks of rheumatism, one of which occurred at the age of two years and nine months, and the other at the age of six years and four months. Dr. Heberden reports that "rheumatism had appeared as early as in a child of four years old." Dr. Watson states in his Lectures that he has "frequently seen it in children, sometimes as early as the third or fourth year;" and Dr. Davis states (*Med.-Chirurg. Rev.* October, 1817), "several cases of acute rheumatism were admitted in children of three, four, five, six, and seven years, and upwards." In its chronic form, rheumatism may probably be ranked as among the most common maladies of the decline of life.

Dr. Fuller denies that the occurrence of an acute attack of the disease tends to strengthen the disposition to rheumatism. If such were the case, he remarks, the victim of a well-developed attack of the disease would inevitably be a martyr to rheumatism for the remainder of his life; whereas the occurrence of a single acute attack is by no means uncommon when exciting causes are subsequently avoided, and the general health is carefully attended to.

There is much truth in the following remarks:—

"When once a paroxysm has been fully established, there is too much reason, however, to dread its recurrence at some future period; for it is a certain sign of a tendency to the formation of the rheumatic poison, of the proneness of the system to suffer from its influence, and of its power to set up those actions which constitute a paroxysm of acute rheumatism. Moreover, in ordinary cases, but little care is taken, after recovery from such an attack, to guard against a similar invasion in future. The disease is looked upon as the effect of cold; and, therefore, to use the common phraseology, 'when it is fairly cured,' no treatment is subsequently adopted; no means are taken to improve the general health; the patient having for the time got rid of the *materies morbi*, feels as well, or even better, than he had done for weeks or months previously, and ignorant of the real cause of the disease, is unwilling, even should his medical attendant recommend it, to subject himself to further treatment. Yet this is just the time when medical interference is most effective in correcting that un-

healthy state of assimilation on which the existence of rheumatism depends, and which, if not immediately arrested, will probably pass from bad to worse, until it issues again in a paroxysm of the disease."

In regard to the seat of rheumatism, the particular textures of the body in which the disease is seated, on which so much difference of opinion has existed among pathologists, and, to some extent, still exists, Dr. Fuller remarks that, although

"The joints and the surrounding structures are the parts most commonly implicated; still, not unfrequently the pericardium and endocardium, the investing and lining membranes of the heart, become the seat of rheumatic inflammation, and, in some rare cases, the heart itself does not escape entirely unscathed. The uterus, the kidneys, and more rarely the liver, sometimes experience the effect of its irritation, and the lungs are not unfrequently affected, as is evidenced by the supervention of bronchitis and pneumonia. In some cases, active pleurisy supervenes, and more rarely inflammation of the sac of the peritoneum. The eyes occasionally suffer, as do also the testes, and the skin, and the periosteum in various parts of the body. Dr. Watson has reported rheumatism of the articulation of the jaw; Dr. Copland and others, of rheumatic inflammation of the membranes of the spinal cord, and instances of inflammatory affection of the dura mater are to be found in every work on rheumatism. And other parts are secondarily, even if they be not primarily implicated, for the cartilages of the joints may inflame and ulcerate, and even the osseous structures may eventually become involved in the mischief. That such complications would occasionally arise, might have been expected, *a priori*, from the general distribution of the cause of irritation, and the severity of the local symptoms induced; and, although many of these complications are happily of rare occurrence, and are seldom, if ever, met with in otherwise strong and healthy subjects, yet to deny their existence is to disregard facts which are fully confirmed by experience. But not only does the rheumatic virus obey the general law of poisons, in that its action is not limited to any one texture or organ of the body, it further resembles this class of agents in displaying a partiality for a particular texture, and particular organs, upon which it fixes in preference to others. Such a texture is the white fibrous tissue, which enters into the formation of the aponeurotic sheaths, the fasciæ, the capsules of the joints, the ligaments and tendons, and the fibro-serous membranes in various parts of the body. The parts, therefore, most commonly affected, are the joints and their surrounding structures, the valvular apparatus of the heart, and the fibro-serous coverings of the heart, the strong white glistening sac of the pericardium.

"The reason of this predilection of the rheumatic poison for the fibrous and fibro-serous textures throughout the body is not at first sight obvious, nor, indeed, after the most careful consideration, can we assign to it other than a conjectural cause. But it is worthy of note that the textures most commonly implicated in rheumatism are all examples of the albuminous and gelatinous tissues, from the decomposition of which, in the wear and tear of the body, are formed those secondary organic compounds, the lithic and lactic acids, with which gout and rheumatism are intimately connected. And as it is but consistent with our knowledge respecting the processes of nutrition and assimilation to suppose that each tissue selects from the blood, and appropriates to itself such matters as correspond with it in chemical constitution, we may readily conceive that some peculiar attraction may be exerted by the fibrous and fibro-serous textures for compounds, such as the lithic and lactic acids, to which they bear so strong an affinity."

The fact that the joints which are most exposed, as the knees, feet, ankles, wrists and hands, the elbows, shoulders, and hips, are the parts most commonly implicated in the attack of rheumatism, that such articulations as have been the seat of local injury, as a sprain, etc., and that parts which are habitually and violently exercised, are those in which the earliest symptoms

of the disease usually appear, Dr. Fuller explains as follows, and perhaps correctly:—

“In all these cases the nutrition of the parts affected is unusually exalted, their power of attracting and separating from the blood such matters as correspond with them in chemical constitution is proportionably increased, and hence the reason of their being affected prior and in preference to other parts of the body.”

Dr. Fuller divides rheumatism into: 1st, acute rheumatism, or rheumatic fever; 2d, rheumatic gout; 3d, chronic rheumatism; and 4th, neuralgic rheumatism.

In the fourth chapter, we have a very accurate description of the first variety—acute rheumatism, or rheumatic fever.

In regard to the ordinary duration of this form of the disease, which Dr. Warren makes six weeks, Scudamore, in mild and favourable cases, three weeks or even less—but when the course of the disease is untoward, two months; Chomel, four weeks—convalescence never taking place before the twentieth day; and Dr. Macleod, from five to six weeks; Dr. Fowler has been led to believe, from the result of his own observations, to be, under ordinary methods of treatment, even when the disease is unattended by any internal affection, from four to five weeks. Of 246 cases admitted into St. George's Hospital during the period he held the office of Medical Registrar, the great majority were decidedly convalescent about the end of the fourth or the beginning of the fifth week from the commencement of the attack, and were ready to leave the hospital about the end of the sixth week. Of 23 other cases noted by him at the Hôtel Dieu at Paris, and part at Addenbrooke's Hospital at Cambridge, considerably above one-half were of about the same duration. Dr. F., however, remarks:—

“Experience has taught me to believe that remedial agents are capable of still further shortening its duration; and to such an extent does this hold good that I hope to show the average duration of an uncomplicated attack may be reduced by judicious treatment from a month or five weeks to ten days or a fortnight.”

This treatment is detailed in the ensuing chapter. After a general consideration of the value of different remedies, bleeding, purging, opium, vapour and hot-air baths, mercury, tartar emetic, cinchona, colchicum, guaiacum, nitrate of potash, lemon juice, alkalies and their salts, Dr. Fuller remarks, that his chief objection to many of the expedients which have been resorted to for the cure of acute rheumatism lies not so much against the remedies themselves, as against the mode in which they have been employed.

“Each remedy or class of remedies has been too exclusively relied upon. There may be occasions in which bloodletting, or opium, or calomel and active purging are necessary; there may be circumstances which call for the exhibition of guaiacum, of nitre, of colchicum, or other agents; but it seldom if ever happens that the cure of acute rheumatism can be safely intrusted to any single remedy. For as the disease presents different aspects in different cases, so does it also at different stages in the same individual; and even were it not so, the constitutional disturbance is so great, the cause of the derangement is so widely spread, and its effects extend to such a variety of organs, that every principle of medicine points to a compound method of treatment as most likely to lead to a successful issue.”

Venesection, Dr. F. does not consider necessary for the relief of the pain or the tranquillization of the pulse, while in pale and weakly subjects, he believes it is injurious by rendering more irritable the already irritable and

excited heart. In the young, plethoric, and robust, in whom secretion is insufficient, whose pulse is full and bounding, and whose skin is hot and dry, he is convinced that it does assist in expediting the action of other remedies, and so in promoting recovery. To such cases he would restrict the employment of bloodletting—and restrict it to a single operation of from eight to ten ounces.

Under the circumstances referred to, we believe that venesection is imperiously demanded; and the abstraction of double the quantity of blood indicated will often be followed by immediate relief, and tend to shorten considerably the duration of the disease.

When the bowels are acting once a day, Dr. F. considers purgatives to be seldom necessary, though a dose of calomel and opium may be given with the view of modifying the character of their secretions. When, however, the bowels are sluggish, and the discharges dark coloured and offensive, he advises the calomel and opium to be administered at once, and followed, after the lapse of six or eight hours, by infusion of senna, with half an ounce of the potassio-tartrate of soda and twenty minims of the wine of colchicum. The amount of opium to be so adjusted to the dose of the purgative as to procure one full and copious evacuation without the distress attendant upon purging. If the tongue be rather dry, the bowels continue sluggish, and the dejections dark-coloured and offensive, Dr. F. directs the mercurial and purgative to be repeated for several successive days; when, however, the secretions from the bowels are copious, but unhealthy in character, he directs the calomel and opium to be given at night, without being followed by a purgative in the morning.

Whilst the state of the intestinal secretions are thus attended to, Dr. F. administers the alkalies or the neutral salts in combination with colchicum, full doses of opium, and sometimes a little antimony. His experience has taught him that by the alkalies, given in sufficiently large doses and in combination with other remedies, the most agonizing pain is speedily relieved, and the fever subdued with marvellous rapidity—the patients becoming rapidly convalescent:—

“In twenty-three out of thirty-nine cases in my note-book,” he remarks, “the pulse was tranquillized within forty-eight hours from the commencement of treatment, and in twenty-eight the pain was lulled, and the local inflammation greatly subdued within the same time, whilst in the remaining cases a longer period was required, in consequence either of previous constipation, or of the coexistence of some internal complication.

“The form in which I usually administer the remedies is that of a simple saline or a nitre draught, to which, if the patient be a person of average strength and robustness, bathed in profuse perspiration, with red, swollen, and exquisitely painful joints, a furred tongue, loaded urine, and a full and bounding pulse, I usually add from two to three drachms of the potassio-tartrate of soda, ten or fifteen minims of the vinum colchici, from fifteen to twenty minims of the vinum antimonii, and from ten to fifteen minims of the tinctura opii, or of Battley’s sedative solution to prevent the salt running off by the bowels. This draught is repeated for the first twelve or twenty-four hours at intervals of three or four hours, according to the strength of the patient and the severity of the attack; and if the pain is excessive, I prescribe a pill containing from half a grain to a grain or a grain and a half of opium, or an equivalent dose of Dover’s powder to be taken once or twice a day, taking care to increase or diminish the quantity of the sedative according to the circumstances of the case; on the one hand, avoiding constipation and narcotism, and on the other, guarding against diarrhoea.

“Sometimes, though rarely, the stomach does not easily tolerate these large doses of the neutral salts, and in such cases, the greatest benefit is derived from

the addition of a little lemon-juice and an alkaline carbonate, forming a saline effervescent draught. With this variation, an instance rarely occurs in which the medicine deranges the stomach, or produces the slightest disagreeable effects.

"When once the medicine has begun to take effect, which is evidenced by the gradual decrease of the pain, the tranquillization of the pulse, and the increase in the quantity and specific gravity of the urine, it is repeated every fourth hour only, and then every fifth or sixth hour; and usually at the expiration of two or three days I find its work in great measure accomplished; the saliva by that time has lost its acidity, the pains and inflammation have subsided, the pulse has fallen probably from 120 to 86 or 90 beats in a minute, the tongue has become moister and less red and furred, the urine more abundant, less loaded with the lithates, and of a higher specific gravity, and the perspiration less acid, less sour-smelling, and less profuse. In proportion as these symptoms of amendment manifest themselves, so is the dose of the alkalies decreased, until after the lapse of three or four days I usually feel justified in commencing the administration of quinia during the day, taking care to maintain a free action of the bowels by exhibiting now and then at bedtime two or three grains of the acetous extract of colchicum together with aloes or rhubarb, and, if necessary, a grain of calomel or blue pill. Should there be the slightest return of pain, the least increase of coating on the tongue, or, indeed, any evidence of returning fever, the use of quinia is at once abandoned, and alkalies are again resorted to. But generally the case proceeds steadily to convalescence, and after a few days the pills are either omitted altogether or repeated less frequently and in diminished quantities. Sometimes, if there be not much tendency to perspiration, the *mistura guaiaci* of the *pharmacopœia* may be administered, with the addition of a drachm of the volatile tincture of guaiacum and twenty or thirty minims of liquor potassæ, whilst, if the patient appears to be cachectic, the decoction of cinchona with the addition of the ammoniated tincture of guaiacum, or of half a drachm of the extract of sarsaparilla, with two or three grains of iodide of potassium and twenty minims of liquor potassæ proves a more active and efficient agent."

In regard to local remedies, Dr. Fuller restricts the application of leeches to those cases in which inflammation lingers about a particular joint, or in which the intensity of the action is so great as to threaten the integrity of the structures.

Warm fomentations may be, he judges, employed advantageously. They soothe the parts, promote perspiration, and thereby, he thinks, favour the elimination of the poison. Dr. F. has tried hot water, a warm solution of nitrate of potash, a simple alkaline solution, and finally a mixed alkaline and opiate solution, and has found the latter far the most powerful in allaying the pain of rheumatic inflammation. In every instance it has produced almost immediate relief, and the pain and inflammation have subsided rapidly. The solution usually employed by Dr. F. is potassæ carb. ʒj; liq. opii sedativi ʒvj; aquæ rosæ ʒix; sometimes, however, the decoction of poppies is substituted for the liq. opii and rose water. It is applied by soaking thin flannel in the solution, and applying this to the inflamed parts, and then enveloping the whole in gutta serena.

Upon the subject of diet, Dr. F. makes the following judicious remarks:—

"The patient must be kept low; yet as there is an excessive drain upon the system, it is expedient to allow him more nourishment than would be safe or proper in other inflammatory complaints. Strong beef tea and jelly may be given in moderate quantity; and with the view of supplying the waste caused by the perspiration, and of promoting the dilution, and more rapid absorption of the alkaline medicines administered internally, diluents, such as whey, thin gruel, or barley-water should be taken from time to time."

To illustrate more fully his mode of treating acute rheumatism, the author

presents the detail of six cases and an analysis of thirty-nine cases treated by him according to the plan above indicated. The results are highly favourable, and strongly press the plan upon the attention of physicians. How far it will be found adapted to the control of the disease in the intensely inflammatory character under which it often occurs in this country, experience alone can determine.

Chapter VI. treats of the causes of rheumatic affection of the heart. The frequency of rheumatic inflammation of the heart, Dr. F. attributes to the similarity in structure between the joints and the investing and lining membranes of the heart, the rheumatic poison having a special affinity for the fibrous and fibro-serous textures throughout the body, and fixing more particularly upon those which are in any way subject to irritation. The occurrence of carditis in any particular instance, he supposes, is determined, in great measure, by the irritability of the heart, from whatever cause arising; but, he remarks, according to the intensity of the febrile disturbance, so, *cæteris paribus*, is the liability to inflammation, whether of the joints, the heart, or any other part of the body, inasmuch as the violence of the febrile symptoms forms a tolerably accurate measure of the amount of the poison present in the system, and of the patient's susceptibility to its influence. He refers, also, to the number and intensity of the articular inflammations, and the proneness they exhibit to shift their quarters, as guides to the probability of heart or other internal affections, as it indicates not only the presence of a large amount of morbid matter, and a peculiar susceptibility to its irritation, but, also, that it has no special tendency to become fixed to any particular spot, and may, therefore, seize upon the heart, or some other internal organ for which it has more or less affinity. Lastly, he supposes the extreme liability to cardiac inflammation, engendered by the repression or rapid subsidence of the articular inflammation, to be explicable by the greater quantity of the poison which is thus thrown into the blood's current.

Fibrinous deposition on the valves of the heart, Dr. F. considers to be due to the presence of an unusual quantity of fibrine in the blood, and to the weak state of solution in which it is held, probably in consequence of the extreme acidity of the system. He believes it to be essentially independent of valvular inflammation, and may or may not occur coincidentally with it: the probability of its occurrence, however, he considers to be greatly increased by the existence of active valvular inflammation, inasmuch as the slightest roughness or unevenness on a valve, such as would be likely to arise from inflammation, would form a nucleus for the deposit of fibrine, and would thereby favour the tendency to its deposition. Its occurrence, he thinks, must be rendered probable, by the existence of active articular inflammation, on account, not only of the vast augmentation in the quantity of fibrine which is thereby effected, but of the extreme acidity of the system which such a condition implies, and of the weak state of solution in which the fibrine must consequently be held. Dr. F. supposes the deposit to take place on the valves in preference to other parts of the heart, partly in consequence of the extreme susceptibility to the irritation of the rheumatic poison exhibited by the fibrous tissue which enters into their composition—partly in consequence of the excited state in which they are kept by their unusually frequent and forcible contact with each other, and by the passage over them, and impulse against them of blood which has become abnormally irritating in its character, and partly, also, in consequence of the strong tendency which exists to the deposition of fibrine on anything projecting into the arterial current. A further consideration of the circumstances under which these accretions take place, serves, also, Dr. F. supposes, to explain

why the angular projections and the edges of contact of the valves are frequently loaded with fibrinous deposits, whilst the surface and free edges of the valves, and other parts of the endocardial membrane, retain their healthy unincumbered condition. For nothing, he remarks, can be more certain, than that fibrinous deposition may be determined to a spot by any cause calculated to roughen or irritate the endocardial membrane; and the angular projections and the edges of contact of the valves, are just the parts which are most subjected to tension, attrition, and pressure.

The foregoing is a very brief outline of the author's views in reference to the important pathological questions embraced in the sixth chapter. The entire chapter is deserving of an attentive perusal. His remarks on the fibrinous vegetations of the valves of the heart are particularly interesting. The evidence he has adduced to show that they are not always the result of endocardiac inflammation has much weight, though occasionally his inferences appear to us purely hypothetical.

The seventh chapter presents an excellent history of the organic changes to which rheumatic carditis gives rise, followed by an exposition of its physical signs and general symptoms. We present the summary with which the chapter closes.

"In summing up the principal facts deserving of notice in reference to rheumatic inflammation of the heart, I should," remarks Dr. F., "say that it is incidental to all the stages of acute rheumatism, occurring sometimes before the commencement of inflammation of the joints, and possibly, also, in some rare instances, without the occurrence, from first to last, of any active articular symptoms; it arises less frequently towards the close of the disease, when tending to a favourable termination, than it does at its beginning or during its progress. It supervenes, most frequently, in acute attacks of the disease, more especially when inflammation attacks many joints, and manifests a disposition to shift its quarters. It is much more commonly met with in the young than in those in whom the fibrous structures about the joints are chiefly affected, than in those who suffer principally from synovial inflammation. As the general symptoms of its accession are variable and uncertain, and are sometimes altogether absent, the physical signs, which are very characteristic, should be jealously watched for, the chest being examined daily by the stethoscope and by percussion throughout the progress of the disease. On the first indication of cardiac mischief, active means should be taken to prevent its continuance, and, throughout its course, the physical signs should be carefully attended to, as affording the only certain evidence as to the action of the remedies and the progress of the disease, whether towards a favourable or unfavourable termination. *Cæteris paribus*, the prognosis should be more unfavourable in cases accompanied by a copious effusion into the pericardium, with great irregularity of the heart's action, than in those in which a smaller quantity of serum is poured out, and the heart is less embarrassed—more guarded in those accompanied by much constitutional depression than in those marked by tolerance of remedial measures; more cautious when, together with the cardiac inflammation, there coexists inflammation of the lungs or pleura, than when the respiratory organs are unaffected; and much more unfavourable in cases complicated by cerebral disturbance, than in those in which the intellect remains unclouded."

An abstract of sixteen cases of acute rheumatism which proved fatal, in St. George's Hospital, during the six years ending Dec. 31, 1850, are appended, in order to show the important part which cardiac inflammation ordinarily bears in producing a fatal termination, as also the age and sex of the sufferers, and the general character of the *post-mortem* appearances.

The treatment of cardiac inflammation is the subject of chapter eight.

General bloodletting Dr. F. advises, under precisely the same circumstances

as in cases of acute inflammation, uncomplicated with carditis. In cases occurring in robust, plethoric patients, with a pulse of extreme fullness or hardness, it may, he remarks, be had recourse to with the greatest advantage, and may be repeated until some impression is produced on the circulation. In such cases, he believes it will assist in allaying the inflammation, and favour the action of other remedies. In ordinary cases, however, he pronounces it to be unnecessary, inexpedient, and often injurious.

"It tends to diminish the red glóbulles in the blood when they are already below the healthy standard, to render more irritable the already irritable and excited heart, and to favour, as he believes, the formation of fibrinous deposits on the valves. Moreover, if carried beyond the exigences of the case, it may cause an adhesive inflammation to assume a serous or suppurative character, and may prevent that peculiar and most valuable action of mercury, whereby the extent of inflammation is limited, and its products absorbed and got rid of."

Local bloodletting, over the region of the heart, by means of leeches or cups, especially the former, Dr. F. believes to be often very serviceable. When the patient is pale and weakly, and the pulse not more than ordinarily forcible, and bloodletting is deemed advisable for the relief of the præcordial pain and anguish, leeching, and not general bleeding, according to Dr. F., should be had recourse to. Cupping being reserved for those cases in which a copious bleeding is required, and in which blood does not flow freely from the arm.

With respect to mercury, our author believes that without it no case of rheumatic carditis can be safely treated. It sustains, he remarks, the good effect produced by bloodletting; it calms the violence, alters the character, and circumscribes the limits of the local inflammation; it stimulates the absorbents to the business of repair, and promotes the continuance of the natural secretions at a time when they are checked, and well-nigh suspended by the shock the system has sustained. He advises the mercury to be pushed to the extent of inducing ptyalism. He refers to the difficulty experienced in some cases in obtaining the constitutional effect of mercury; even in these, however, the remedy will exercise a most beneficial influence over the course of the disease.

Mercury must be administered with great caution to patients of a weakly, irritable, and unhealthy constitution; in such, its constitutional effects often supervene rapidly, are extremely violent in their character, and sometimes frightfully depressing; it should, therefore, if given at all in such cases, be administered in moderate doses, not too rapidly repeated, and, upon the least symptom indicative of its action, it should be at once suspended.

Opium, Dr. F. considers to be, of all remedies, that which comes most powerfully in aid of bloodletting and mercury. He therefore considers it, in full doses, to be indispensable in every case of rheumatic carditis. It not only subdues pain, but it allays irritability and procures sleep. Dr. F. is convinced that many of his patients would have fallen victims to the disease, had not their strength been husbanded by its sedative influence. In several instances of pericarditis, in which, in spite of venesection and mercury, inflammation has continued unabated, whilst the constitutional irritability has been excessive, and the heart's action rapid and violent, Dr. F. has seen the mercury omitted, and opium administered alone with the happiest and most speedy results.

A large blister over the chest is set down as another most important remedy in rheumatic carditis. When once effusion has taken place, Dr. F. considers blistering to be of all local remedies the most serviceable.

The importance of combining with the remedies demanded by the presence of cardiac inflammation those adapted to control the general rheumatic affection is insisted upon.

"Not only are they conducive to the elimination of the rheumatic virus, but," the author remarks, "they also afford most powerful aid to blisters and mercury, in removing the fluid products of inflammation. They first assist in counteracting and getting rid of the cause of the disease, and then in repairing the mischief it has occasioned. In endocarditis, more especially, alkalies and the neutral salts prove eminently useful; for, by helping to maintain the solubility of the fibrine, and so preventing its deposition on the valves, they guard against a lesion which, by the consecutive changes to which it gives rise, leads surely and rapidly to an untimely grave."

The importance of rest and abstinence in all causes is pointed out.

The remarks of the author on the first symptoms indicative of the accession of carditis, and which justify the commencement of active treatment, and on the caution to be observed in watching for any mischief about the heart, even during the patient's convalescence, are highly pertinent and deserving of close attention on the part of the young practitioner.

The chapter closes with the following important observation, which should never be lost sight of.

"In every instance in which, after all active symptoms have subsided, there still remains much irritability of the heart, it is expedient, whilst attending to the general health, to administer occasional doses of opium and digitalis, and to apply an opium or a belladonna plaster to the chest. By such precautionary measures, and by enforcing that rest which is necessary to enable the excited heart to recover itself and resume its natural mode of action, we may, in great measure, guard against those lesions which, arising after all inflammatory action has been subdued, are due to the existence of chronic irritation rather than of true inflammatory action."

Appended to the chapter are the histories of four cases, given as illustrations of the treatment recommended by the author, and of the share which each remedy takes in effecting the cure.

The ensuing chapter is a most interesting one, presenting a very able and useful view of the statistics of heart disease in connection with rheumatism. It will not admit of a satisfactory analysis.

Chapter X. treats on affections of the brain, inflammation of the lungs and pleuræ, and disorganization of the joints, as complications and consequences of acute rheumatism.

The author shows that delirium, occurring in the course of acute rheumatism, is sometimes, though rarely, referable to inflammation of the brain. More generally he believes it to be connected with acute inflammation of some internal organ, though it occurs sometimes, without any concurrent internal inflammation. The author's view of the true interpretation of the head symptoms which occur in acute rheumatism are ingenious and plausible. The same interpretation he applies also to account for the convulsions and spasmodic actions indicative of spinal irritation. He believes them to be due in the majority of cases to the direct action of the rheumatic poison upon the brain and spinal marrow, or as an effect of the same commencing mischief in the heart, lungs, or pleura.

Cerebro-spinal symptoms he sets down as always indicative of extreme danger, but not necessarily of a fatal issue. A series of cases are given illustrative of these views.

In relation to the treatment of delirium, convulsions, and coma, when they occur in the course of acute rheumatism, Dr. F. remarks:—

"If we are unable to discover any signs of cardiac or pulmonary inflammation, and from the absence of symptoms of cerebral or spinal inflammation we are led to regard the disturbance of the nervous centres as functional only, then, as in delirium tremens or erysipelas, the invasion of head symptoms should be a signal to us to support and tranquillize our patient by the administration of nourishment, stimulants, and opiates. In no case is opium, in combination with diffusible stimulants, of greater service than in this atonic form of delirium; and in none is venesection more prejudicial. If, on the other hand, we detect active cardiac or pulmonary mischief, or from the presence of symptoms of inflammation of the brain, such as excessive heat of head, injection of the eye, intolerance of light, and vomiting occurring coincidently with hardness of the pulse, and other symptoms of acute inflammation, we are led to suspect the existence of cerebral inflammation, then are we justified in having recourse to such antiphlogistic or other remedial measures, as appear called for by the symptoms in each particular instance. In such cases, our efforts should be directed to the speedy subjugation of those actions going on within either the chest or the cranium, which experience has proved to be intimately connected with the occurrence of cerebro-spinal symptoms; and on the cessation of which, it teaches us to believe we may reasonably expect their subsidence. But as it is notorious that venesection and other depletory measures have a tendency to reduce the proportion of red corpuscles in the blood, and to produce a condition favourable to the development of delirium and convulsions, we should be exceedingly cautious in having recourse to their employment, lest, by still further impoverishing the blood, and impairing the powers of the constitution, we seriously endanger our patient's recovery. In cases marked by evident symptoms of cerebro-spinal inflammation, it may be necessary to have recourse to bloodletting; but if in ordinary cases of rheumatic carditis, the expediency of venesection is questionable, much more so is it in those where the nervous centres are irritable, and are suffering from the effects of malnutrition, arising from an altered condition and an irregular supply of blood. Even local depletion, though sometimes expedient in such cases for the relief of active local inflammation, should be seldom practised to any great extent. We should rather endeavour to support our patient, whilst aiming at the relief of the more urgent symptoms, by means of blisters, mercurials, diuretics, and opium. We should economize strength by administering opium in doses sufficient to relieve pain and tranquillize the excited nervous centres; and, at the same time, support the failing powers of the system by means of a nourishing and stimulating diet. One exception only there is to the full, though cautious exhibition of opium. I refer to those instances in which there is a tendency to the supervention of coma. In such cases opium is not only useless, it is decidedly prejudicial to the safety of the patient, who requires a more than usual amount of support and stimulus."

The author's remarks on inflammation of the lungs or pleura, which, when it occurs, constitutes a most formidable complication of acute rheumatism, are deserving of close attention. The statistics adduced by him show that the complication is one of by no means unfrequent occurrence. In its treatment experience has proved that blisters and derivatives are more efficient than general bleeding; and that, although local depletion, antimony, and full mercurial action may be needed for the relief of excessive local action, yet, that no cure can be effected without due regard to the neutralization of the poison, and the promotion of the various excretions by which its elimination is brought about. Hence alkalies, in full doses, with opium and diuretics, are as useful here as in the treatment of the articular symptoms; active purging by the neutral salts is also of essential service. The same circumstance, however, being observed in the employment of a lowering treatment as in rheumatic pericarditis.

Disorganization of the joints is noticed by Dr. F. as another formidable complication of acute rheumatism. The liability to its occurrence usually

varies in an inverse proportion to the number of joints affected. When warm or tepid fomentations, especially the saline and sedative solution recommended by Dr. F., the recipe for which was given when noticing his general directions for the treatment of acute rheumatism, is fairly and fully employed from the first, evaporation being prevented by means of gutta percha, he remarks that articular mischief will rarely if ever happen. But whenever inflammation attaches itself with more than usual obstinacy to any particular joint, he recommends the immediate application of leeches or a blister, and their repetition if necessary whilst the system is being brought under the influence of mercury. Perfect rest of the affected joint is also enjoined; it is best insured by means of a splint.

Rheumatic gout is the subject of Chapter XI. The term is applied to those cases in which the attack partakes in part of the nature of rheumatism and in part of that of gout. In its acute form it is liable to be mistaken for acute rheumatism. Dr. F. believes it to be closely connected with malassimilation. It most commonly occurs in weakly or unhealthy individuals, or to such as have been subjected to some cause of mental or bodily depression.

"It attacks the girl just arriving at puberty, in whom the uterine functions are ill performed; it invades the stiffening articulations of the woman who has arrived at that time of life which is marked by the cessation of the monthly periods; it shows itself during the state of debility which follows a miscarriage or a difficult and protracted labour, more especially when the labour has been accompanied by flooding; it is a frequent attendant upon renal disease, and a common sequel of over-long suckling, of excessive venery, of severe and long-continued mental exercise, and of mental distress and bodily exhaustion. Neither age nor sex affords immunity from its invasion; but most commonly it shows itself from the age of thirty-five onwards, and its earliest attacks are usually seen in girls whose uterine functions are suspended or ill-performed."

Dr. F. has presented a very excellent account of the symptoms which mark the acute attack of rheumatic gout, of the complications which attended it, of the diagnosis of the disease in its chronic form, of the distortions which attend it, the nature of the changes it induces in the joints, and of the mode of detecting the disease when deep-seated joints are affected. We cannot, however, stop to present an analysis of the author's observations in reference to these subjects.

The treatment required in the acute form of rheumatic gout, according to Dr. F., differs little from that of rheumatism, except that, from the character of the persons attacked, it need seldom be actively antiphlogistic; and from the inflammation of the joints being more stationary, and the danger of structural disorganization greater, there is more necessity for the application of leeches, blisters, and fomentations to the inflamed parts. He points out the benefit to be derived in many cases from vapour and hot baths, and warm baths of various descriptions.

The change of treatment which is demanded when the patient is cachectic, and has undergone repeated attacks of the disease, is carefully indicated. Here the remedies which prove servicable in patients of a more healthy and vigorous constitution often produce alarming depression without fulfilling the object of their administration; it is necessary, therefore, to substitute others, as a combination of bark, sarsaparilla, iodide of potassium, that are calculated to improve the tone of the system, which are to be aided in their operation by change of air and scene, and judicious bathing. The directions of the author for the management of the particular symptoms which are liable to occur in individual cases, his remarks on the external applications most beneficial, and his general rules in regard to diet, exercise, and clothing, will be read with interest and profit.

In Chapter XII., Dr. F. discusses the subject of chronic rheumatism. He believes both the acute and chronic forms to be identical in their source and nature; that the acute may lapse into the chronic form, and the chronic may light up into an active state. Passing by his remarks under the heads of muscular rheumatism, lumbago, stiff or wry neck, intercostal rheumatism, rheumatism of the joints, and periosteal rheumatism, we shall merely notice the observations of the author in reference to the leading remedies recommended for the cure of the chronic form of the disease.

The ammoniated tincture of guaiacum Dr. F. considers particularly efficacious, in the dose of a drachm, or a drachm and a half, three times a day. The *mistura guaiaci* of the pharmacopœia is also recommended, when the diffusible stimulant contained in the former is not considered desirable. The *pulvus guaiaci* is considered especially useful in old lingering cases, accompanied by torpor of the intestinal secretions, and a sluggish inactive condition of the skin. It is prepared according to the following recipe: Flowers of sulphur 3ij; cream of tartar 3j; powdered rhubarb 3ij; guaiacum 3i; clarified honey lbj; one nutmeg finely powdered. Mix. Two large teaspoonfuls to be taken night and morning.

"On the same principle," says Dr. F., "as that on which guaiacum has been recommended, many other remedies of a warm and stimulating nature have been administered in obstinate lingering cases. Among these may be mentioned camphor, the oils of turpentine, cajeput, and amber; the balsams of copaiba and Peru; and aromatic and pungent plants, such as mustard, horseradish, and the *arnica montana*. All these agents, either alone or in combination with opium, which often proves a valuable adjuvant, have been found extremely serviceable, and none more so than oil of turpentine." "Were it not for its nauseous flavour, the common oil of turpentine, administered in drachm or half-drachm doses, would be very generally adopted as a cure in obstinate and protracted cases. In combination with bark, I have sometimes known it particularly useful.

"Colchicum is of far less service here than in the more active form of the disease, and its administration should be restricted to those cases in which the joints are principally affected, and the pain is aggravated by heat. Under such circumstances, in combination with alkalies, diuretics, and opiates, it sometimes proves exceedingly beneficial.

"The valuable properties of iodide of potassium are seldom displayed when the muscular structures are the parts affected; but they are strikingly manifest when the patient is out of health, and the joints are suffering. In no instances, however, are its virtues so conspicuous as in those in which the periosteum is implicated. In such cases, administered in two or three grain doses, it speedily gives relief, not unfrequently removing the pain and swelling in the course of a few days; and even when the disease proves more intractable, and lingers on for several weeks, the intensity of the pain is soon subdued, and the patient's health gives tokens of improvement. Indeed, so potent is the influence of this medicine over this particular form of the disease, that in many instances the cure may be safely intrusted to its unassisted powers; but in old-standing cases, where the health is much impaired, it is advisable to combine it with bark and sarsaparilla, and to exhibit a full dose of opium at night. The bowels, in such a case, should be regulated by gentle laxatives, and the general health sustained by a full and nutritious diet."

Dr. F. has sometimes administered cod-liver oil, in half-ounce doses, when the patient has been thoroughly out of health, and in some such cases with undoubted benefit. But, under ordinary circumstances, its efficacy has appeared to him extremely questionable.

"Hydrochlorate of ammonia is a remedy," says Dr. F., "of singular efficacy in chronic rheumatism; yet, strange to say, is almost unknown as such to the profession. In no treatise on rheumatism which I have had an oppor-

tunity of consulting, do I find the slightest notice of its virtues. Yet its action on the skin is admitted by those who have watched the effect of its internal administration." "In fifteen or twenty grain doses, in combination with bark, it produces marvellously good results, and is frequently servicable when other remedies have proved inefficient. The character of the secretions improve under its influence, the skin acts more freely and regularly, and the disease gradually subsides. Its beneficial effects, however, are most remarkably exerted in muscular rheumatism; and when the periosteum or the joints are affected, it seldom affords us much assistance."

Mercury, Dr. F. considers, may be sometimes useful in obstinate cases, especially when supervening in a system poisoned by the syphilitic virus. In ordinary cases it is needless if not hurtful. It sometimes proves useful when there is excessive tenderness with puffiness about a periosteal swelling, and in cases where an enlarged joint continues in a state of irritation, uninfluenced by other remedial agents.

Opium, especially in the form of Dover's powder, and other sedatives, are useful by assuaging present pain, and affording the patient that rest which is as essential to the recovery of his health as for his hourly comfort.

Purgatives are efficient allies in lumbago, especially when the bowels are costive.

The whole of the remarks of the author on the treatment of chronic rheumatism are judicious, but the length to which we have already extended our notice of the work will prevent us from presenting any further analysis of them.

The thirteenth and last chapter is devoted to a consideration of sciatica and other forms of neuralgic rheumatism.

The author gives an excellent description of sciatica, and of the diagnosis between it and disease of the hip-joint, and nephritic irritation. He considers the disease in reference to its treatment, according to its nature and cause in different cases: as a true rheumatic affection, as connected with a syphilitic taint, as caused by gastric or intestinal irritation, as connected with gout, as symptomatic of mischief in the brain, or, as depending upon an alteration in the nerve itself, whether at its origin or in some part of its course. He believes, and we think correctly, that, according as one or other of these causes may appear to have produced the patient's sufferings, the nature and activity of the treatment should vary. But this is not all. Dr. F. remarks:—

"In true sciatica, from whatever cause arising, very different local changes may be induced, and very different remedies required for their relief. Be the affection rheumatic or gouty in its nature, or be it due to syphilis, or to a distended colon, the pain in either case is due to a cause of irritation which may either give rise to no perceptible local change, or, on the other hand, may be accompanied by a copious effusion of serum, or of serum mixed with lymph, within the sheath of the nerve. In the former case, the means already mentioned as adapted to the removal of the several causes from which the affection derives its origin, will be sufficient to effect a cure. But in the latter, the disease is more complex and less tractable. The effusion here is not, as in ordinary rheumatism, of secondary importance; it takes place within the sheath of the nerve, presses upon the nerve, impairs its function, and thus leads to malnutrition and wasting of the limb; and, if the pressure is not speedily removed, irremedial alteration of structure takes place; and the nerve, hardened by long-continued pressure, is found after death gray and shrunken.

"In every case of sciatica, then, the existence or non-existence of effusion within the sheath of the nerve, is a question of primary importance. If no effusion exists, the remedies before alluded to as best calculated to remove the different causes of irritation, will be the most efficient in removing the irritation itself, with the pain and other symptoms consequent thereon; whereas, if effusion has already taken place, measures will be needed, not only to allay existing

irritation, and remove its cause, but to promote absorption of the effused fluid, and remedy the mischief it has occasioned.

"By what symptoms, then, are we assured of the existence of effusion? I know not whether the experience of others corresponds with my own observations on this subject, but such signal benefit has often been derived from remedies applied in accordance with the views I am about to enunciate, that I cannot but think them entitled to consideration.

"At the commencement of an attack, no *certainly* can be felt as to the existence of fluid within the sheath of the nerve. The *probability* of its occurrence, however, is in proportion to the severity of the local symptoms, and the intensity of the febrile disturbance, and remedies should be selected and apporportioned accordingly. If pain be the prominent feature of the attack, and be unaccompanied by febrile symptoms, it would be right to act as though no effusion had taken place; whereas, if the pain be attended by fever, it would be prudent to have recourse to measures calculated to check those actions on which the occurrence of effusion depends. But after the disease has lasted longer, and has passed into a chronic form, we have more to guide us to a correct diagnosis. If effusion is present, there is then not only local pain, but numbness and partial paralysis of the limb as the natural and characteristic results of pressure on the nerve. The nerve being compressed by the fluid within its sheath, its function is impaired, and the symptoms alluded to necessarily ensue. Hence, when a patient who is suffering from sciatica complains of a *dull, aching, and benumbing pain in the limb, causing it to feel swollen*; when this sense of numbness and increased bulk has succeeded to pain of greater intensity, accompanied by cramps and startings of the limb, and more especially when, in addition to these symptoms, there is more or less inability to move the limb, the presence of fluid within the sheath of the nerve may be inferred, and steps should be taken to obtain its evacuation, either by mechanical or medicinal means. In such cases—and how common are they in practice?—I have repeatedly seen sedatives employed freely and pertinaciously, and various antiscissatic remedies made use of, with the view of effecting a cure; but until the measures alluded to have been adopted, the failure has been so uniform and so complete, that now, whenever symptoms of effusion present themselves, I always resort to that method of treatment which, whatever its *modus operandi*, is entitled to the credit of giving speedy relief."

The measures enumerated by Dr. F. as those most efficacious in checking the progress of effusion, and promoting its absorption, are, cupping, leeching, and blistering, combined with the internal administration of mercury and diuretics. He points out the particular circumstances and stage of the disease to which each is adapted; we cannot, however, follow him in his remarks under this head, nor in those he has presented on acupuncture, and when and how it is servicable in sciatica. His observations on the value of opium, belladonna, stramonium, hyosciamus, and conium, as sedatives, and on the points to be borne in mind before deciding on their administration, as well as those on the efficacy of these and other remedies when applied externally; the influence of baths, general and local, as curative agents, and the mode of action, and the circumstances under which quinia, iron, arsenic, and other tonics prove beneficial, are all indicative of close observation and sound judgment. They may be consulted with profit.

That we have formed a very high estimate of the work of Dr. Fuller, will be already inferred from the general approbation we have more than once expressed of the author's pathological and therapeutical views, in the course of our analysis of the several chapters, as well as from the length and frequency of our quotations. The author appears to have studied the several forms of rheumatism at the bedside with care and fidelity, and he has presented the result of his observations in a shape well calculated to lead his readers to correct views in relation to the causes, character, and proper treatment of the disease.

D. F. C.

BIBLIOGRAPHICAL NOTICES.

ART. XIV.—*Atlas of Pathological Histology*. By Dr. GOTTLIEB GLUGE, Professor of Physiology and Pathological Anatomy in the University of Brussels, etc.; translated from the German by JOSEPH LEIDY, M. D., Pathologist to St. Joseph's Hospital, Philadelphia; Fellow of the College of Physicians, etc. etc., with three hundred and twenty figures, plain and coloured, on twelve copperplate engravings. Philadelphia, Blanchard & Lea, 1853: folio, pp. 100.

WE are glad to see this excellent work of Gluge translated into English by so competent a hand, and put within the reach of the profession in this country. The history of the development and changes of the elements of pathological tissues, has become now a necessary introduction to the study of morbid anatomy. It can no longer be looked upon as merely accessory. Bearing the same relation to it as does normal histology to normal anatomy, it appears to us to be of still higher importance, since it has a closer and more direct bearing upon practical medicine. Whatever makes our knowledge of diseased structure clearer, must throw light also upon the plan of cure, and show us too, in many instances, where a cure is impossible. The microscopic examination of morbid products has in this way rendered essential service to medicine; the conflicting opinions of microscopists, have, moreover, gradually become harmonized, and the errors of imperfect or hasty observation corrected by time, experience, and the increased number and skill of those engaged in the pursuit. Hence, greater confidence can be placed in the stability of facts now observed, than could have been accorded a few years since.

This being, as far as we know, the only work in which pathological histology is separately treated of in a comprehensive manner, it will, we think, for this reason, be of infinite service to those who desire to investigate the subject systematically, and who have felt the difficulty of arranging in their mind the unconnected observations of a great number of authors. The development of the morbid tissues, and the formation of abnormal products, may now be followed and studied with the same ease and satisfaction as the best-arranged system of physiology. We hope that the period is not remote when it may equal this branch of study, in the fulness and certainty of its facts.

In the Introduction, are given tables of the magnitude and weight of the organs of man, in the normal and abnormal conditions.

These, which are doubtless the result of a great deal of laborious industry, will be found of much utility for reference.

In the first section, the development of the elements of the tissues is considered. Here is described the latest well-ascertained mode of cell-formation in animal structures; the analogy existing between the pathological and physiological development of cells is also shown, as well as their artificial formation. The second section treats of the combination of these elements in perfect or imperfect tissues, and arranged according to the processes of disease.

The formation of the (pathological) blastema, forms the subject of the next section. Under this head, an account is given of the derivation of the plasma from which the material of new tissues is evolved. Dr. Gluge says, that it is deposited in two modes "without a previous stasis of the blood, as in normal nutrition and with stasis of the blood-corpuscles, probably through their agency, as in inflammation." The author's views of the latter process are very clearly expressed. He divides it into the stages of congestion, hyperæmia, stasis, exudation, and gangrene, at any of which it may terminate. He makes a distinction between congestion and hyperæmia, the first consisting of "an unusual flow of blood through a certain portion of the capillary system in a given time,"

the latter in "an accumulation of blood in a portion of the capillary system, in arteries or in veins produced by a retardation of the circulation." The first is not necessarily the commencement of inflammation, but the latter is invariably its forerunner. In hyperæmia of the capillaries, the blood-corpuscles are described as accumulating and coming into immediate contact with their walls, to which they adhere, thus retarding the flow of blood and giving redness to the tissue.

"If the capillary vessels are stopped up with blood-corpuscles, all movement of the sanguineous column ceases. The so-called lymph-corpuscles increase in number, and the lymph space has disappeared. The blood-corpuscles themselves undergo the following changes: They become grouped frequently in regular columns, resembling piles of coin; their colouring matter dissolves in the small quantity of remaining liquor sanguinis; and they become irregular and fuse into a firm fibrinous mass. Or, they decrease in size, give up their colouring matter, and a portion of their fibrine, and become united by means of a soft, gray, coagulated, albuminous matter, into mulberry-formed groups, the inflammation-globules. Accompanying this change, serum, stained red, exudes from the capillary walls, and these are themselves sometimes ruptured, corresponding to the condition of the so-called inflammatory engorgement. Or, the blood-corpuscles give up their contents to the liquor sanguinis, which, effusing from the capillaries into the surrounding parenchyma, constitutes fibrinous exudation. At first, the fibrine is always dissolved in a greater or lesser quantity of serum, but rarely remains a long time in the liquid condition, as in the so-termed *hydrops fibrinosa*, most usually coagulating immediately. Under the latter circumstances, the walls of the capillaries become invisible, apparently from their having been pressed together by the exudation; and an organ in this degree of stasis, as, for instance, a hepatized lung, contains a much smaller number of blood-corpuscles than in the normal condition. The extravasation of liquor sanguinis determines, in all grades of stasis, swelling of the organ; and the impediment to the capillary circulation augments contraction of the arteries, and hence the beating of the part, which is therefore a result, and not a cause of stasis. So soon as stasis has advanced to a considerable extent, the blood yet retained within the vessels presents a decided increase in the quantity of fibrine, which is also a result and not a cause of the condition. The exudation may now be either absorbed, organized, converted into pus, or become entirely decomposed."

In this description of the microscopical characters of the pus-corpuscles, the author calls them *nuclei*. He believes them to be the nuclei of future cells, principally from "the fact that, in granulations and the formation of cicatrices, it is readily and directly conclusive that cells form upon pus-corpuscles, for the nuclei of young cicatrix cells, in appearance and chemical relation, are perfectly identical with the latter." The author says that lymph-corpuscles are undistinguishable from pus-corpuscles without nuclei; and, that "the nucleus of perfectly formed epithelial cells exhibit the strongest resemblance to pus-corpuscles." Hence, he says, that he believes no longer "in the possibility of distinguishing pus-corpuscles by means of the microscope, from physiological and other pathological structures which resemble them." His views of the structure and office of these bodies are quite new, and worth the attention of the cultivators of microscopic anatomy. The chemical relations, and the varieties of pus are next described, followed by an account of the process of granulation and cicatrization. The succeeding sections upon the histological metamorphosis of the blood, on purulent infection and gangrene are of equal interest. After these, we find a series of observations on histology, which are illustrated by the plates. These latter being the same as accompany the original work, the learner is spared the inconvenience arising from the frequent inaccuracy of the copies of microscopic drawings.

The few additions which have been made by Dr. Leidy are both judicious and important, and the translation is executed in a correct and faithful manner.

M. S.

ART. XV.—*What to Observe at the Bedside and after Death in Medical Cases.*

Published under the authority of the London Medical Society of Observation. Philadelphia, Blanchard & Lea, 1853: 8vo. pp. 206.

THE Society under whose auspices this useful little volume is published, was founded about two years ago by Drs. Walshe, Jenner, and several other gentlemen, in imitation of the Parisian Society of the same name, and of which Dr. Walshe was an early and active member. The circumstances of its publication may best be understood by an extract from the preface: "Soon after the Medical Society of Observation had been formed, it was felt by the members that the labour of analyzing and comparing clinical observations would be greatly lightened, and the precision of the observations themselves increased, if the records of these were in every instance arranged on a uniform plan. The Society in consequence adopted, with some modifications, a form of arrangement of symptoms and after-death appearances, which had been framed by Dr. Walshe. The publication of this form seeming desirable, it was referred to a committee, who expanded and altered various parts of it, and finally threw it into its present shape."

The general arrangement, and to some extent the details of the plan are identical with those which originated in the Parisian Society, and which have been published in various manuals, but especially in that of Raciborski (*Precis du Diagnostic*), but there is far greater minuteness and more attention to systematic arrangement of the points of inquiry in the present than in any previous work. This, which might by some be looked upon as likely to discourage novices in the art of observation, and as therefore a fault, does not really merit blame. For the observer is not compelled to note in each patient the whole of the phenomena and conditions here enumerated. Only a part of them indeed is applicable to any particular case, and some of them are much more important than others. Hence, although working according to a uniform plan, every one is at liberty to adopt just so much of it as his convenience or opportunities enable him to do. His results, however, will acquire a greater value in proportion to the completeness of the elements from which they are derived.

The general divisions of the work are these: Part I. *The Clinical Examination of a Patient*. 1. The Personal Description and Peculiarities of the Patient in Health. Under this head, his physical and psychical peculiarities are noted. 2. Previous History, including the hygienic influences operating upon him; the General Health, Sexual Condition, and Family History. 3. History of the Attack, its Prodromata, Invasion, and Progress. 4. Actual Condition of the Patient, including Generalities; Condition of the Integuments; Organs of Locomotion, of Digestion, of Respiration, and Circulation; the Lymphatic System, Urinary Organs and Urine, Organs of Generation; the Head, and the functions of the brain; the Spinal Cord and its functions; the Organs of Sense; the Nerves; the Vascular Glands. Finally, the Progress of the Case—diet, regimen, external and internal treatment—phenomena of death. Part II. contains in minute and systematic detail the points to be noted prior to commencing a *Post-mortem* Examination, and during its progress, and of course repeats the physical inquiries noted among the symptoms besides all the other analogous ones relating to the interior of the body. An Appendix gives more in detail than had previously been done the inquiries proper to be made relative to the condition of the membranes, fluids, and certain pathological results. The following extract is subjoined for the purpose of illustrating the manner in which the study of disease is prescribed to those who would understand it thoroughly:—

"*Throat, etc. Uvula*:—length; form; thickness; direction of its axis;—surface, smooth, glazed; color—œdematous; flaccid; abscess sloughing; ulcers; vesicles; exudation, etc.

"*Soft palate*:—(particulars as *Uvula*.)

"*Fauces*:—size of opening; state of pillars (particulars as *Uvula*).—*Pain*: its direction;—other sensations, constriction, dryness, etc.;—tactile sensibility, increased, diminished.—Noisy respiration; snoring.

"*Tonsils*:—swelling and tenderness externally.—Position of tonsils; distance between them;—size; form; consistence; fluctuating;—tender to touch;—color;—surface; dry, moist, smooth, glazed, uneven; openings on surface;—oedema; abscess; sloughing; ulcers; secretions and exudations on surface.

"*Pharynx*:—size of cavity;—apparent thickness of membrane.—Surface of mucous membrane; smooth, glazed, granulated; dry, moist;—vessels apparently full;—its colour;—stains.—Secretions; exudations; blood on surface.—Oedema; bogginess; fluctuation; abscesses; tumours; sloughing; ulcers, and other destructions of substance; cicatrices.—Condition of follicles.—Projections from posterior nares into cavity.—*Abnormal sensations* in pharynx; burning, dryness, constriction, etc.—Tenderness.

"*Œsophagus*:—swelling in neck externally.—Examination with bougie; obstruction to passage, its seat; can it be overcome by moderate pressure?—Signs of dilatation and sacculation?—Is anything visible during retching?—*Pain* in course of gullet, during swallowing or at other times;—sense of constriction, burning, globus, etc.

"*Deglutition*:—pain during the act: its seat, extent, duration, character.—Deglutition difficult; period of act at which difficulty is perceived;—attempt to swallow productive of sense of suffocation, of spasm of muscles of throat or pharynx;—is difficulty greatest with solids or liquids?—what matters are swallowed most easily?—is a large gulp of liquid swallowed more easily than a small one?—has the patient any contrivance for rendering the act easier?—does the act produce cough?—do swallowed matters return by nostrils?—is the act affected by temperature of matters?—is the site of obstruction distinct to patient, and how?—is deglutition favoured by a recumbent posture? Frequently or constantly repeated efforts at deglutition.

"*Regurgitation*:—period after swallowing at which it occurs; attended with effort, anxiety, or nausea? accompanied by any stethoscopic sound?—Physical characters of regurgitated matters; their reaction."

To all who are convinced that knowledge is to be got by labour only; who believe that in medicine the only genius that does not lead astray is the genius of interpreting nature by reading, or even by spelling out, the phenomena through which alone she speaks to the understanding; to all who recognize the fact that the only progress ever made in medicine was the result of a close, steady, docile, and persevering study of these phenomena; and to all who are ambitious of adding somewhat to the mass of medical knowledge that shall out-live doctrines and sects—we heartily commend this little book as a timely and efficient helper, and a guide which, if patiently followed, will lead them to knowledge, and fit them to use whatever skill nature may have granted them.

A. S.

ART. XVI.—*Principles of Human Physiology, with their chief applications to Psychology, Pathology, Therapeutics, Hygiène, and Forensic Medicine.* By WILLIAM B. CARPENTER, M. D., F. R. S., F. G. S., Examiner in Physiology and Comparative Anatomy in the University of London, Professor of Medical Jurisprudence in University College, etc. Fifth American from the fourth and enlarged London edition, with three hundred and fourteen illustrations. Edited, with additions, by FRANCIS GURNEY SMITH, M. D., Professor of the Institutes of Medicine in the Medical Department of Pennsylvania College, Lecturer on Physiology in the Philadelphia Association for Medical Instruction, etc. Philadelphia, Blanchard & Lea, 1853: 8vo. pp. 1091.

THE treatise of Dr. Carpenter on the Principles of Human Physiology has been with us always a favourite work. We know of none, indeed, following it up through its successive editions, which is better calculated, on the whole, to exhibit a faithful reflection of the present aspect of physiology in its philo-

sophical and practical bearings. A sound discretion has been exercised by Dr. Carpenter, in making his selection from the vast mass of results which have been accumulated by the labours of the more recent physiologists, in admitting those only which bear the marks of correct deductions from a sufficient series of careful experiments and patient and cautious observations, or, when contradictory or inconsistent results are presented by investigators of equal authority, in adopting those most consonant with usually received views. Although in weaving his materials into a systematic form, so as to present a correct history of the phenomena which normally occur during the existence of living beings, with those general laws or principles which express the conditions of their occurrence, and the causes to which they are attributable, he may not succeed in convincing every reader of the correctness of his teachings, still, for fulness and accuracy, the account he has furnished of the facts and doctrines which constitute the principles of human physiology as now generally received, it must be conceded, has not been excelled by that of any other writer; while as a systematic treatise, the work of Dr. Carpenter recommends itself by its clearness and precision.

The foregoing remarks are especially applicable to the edition now before us, which may, in fact, be considered in the light of an entirely new work, in which the present convictions and opinions of the author are as completely expressed, as if the treatise had now been for the first time put forth, "the old materials having been incorporated with the new, rather than the new with the old, and having only been employed where they could be readily made subservient to this purpose."

The following outline of the important changes which have been made in the character and arrangement of the present edition, as given by the author in his preface, will show the extent to which the reconstruction of the work has been accomplished.

"Considering it extremely important that his readers should have a clear idea of the sense in which the terms *law* and *cause* are subsequently employed, he has devoted a few pages of the *Introduction* to an explanation of his views upon these points, and he hopes that he may be there found to have thrown some light upon the philosophy of causation, which may be of assistance to other scientific inquirers.

"In order to make room for a portion of the new matter which he desired to introduce into the treatise, he has felt it necessary to omit all those references to the structure and vital actions of the lower animals which had not an immediate and direct bearing upon human physiology; and consequently, of the first chapter of the previous editions—'On the Place of Man in the Scale of Being'—he has only retained so much as related to the characteristics that distinguish Man from the mammalia which most nearly approach him. The succeeding chapter, which treated 'Of the Different Branches of the Human Family, and their Mutual Relations,' has been extended in all that relates to man, and curtailed in that which rather belongs to Comparative Physiology, and has been transferred to nearly the end of the volume, which the author considers to be now the more appropriate place for it.

"The second chapter of the present edition, comprising a general view 'Of the Chemical Components of the Human Body, and the changes which they undergo within it,' is now for the first time introduced. Several new views will be found in this chapter, which have occurred to the author during its preparation; he would especially point to that of the respective relations of fibrine and albumen to the nutritive processes, and of the former to the gelatinous tissues; and to the general summary which forms the last section, in which the discoveries of M. Cl. Bernard, in regard to the elaboration of sugar and fat in the liver, are placed, he believes, in a somewhat novel aspect.

"From the consideration of the chemical components of the organism, and of the participation of chemical forces in its operations, it seemed natural to pass on to that of 'The Structural Elements of the Human Body, and the Vital Actions which they exhibit,' which forms the subject of the third chapter. Nearly the whole of this chapter, which includes the general doctrines of cell-formation and of vital force, in their application to human physiology, appears for the first time, in this edition.

"Passing on to the more detailed survey of the constituent parts of the human body, the first place seemed to be claimed by the blood, the 'physical characters, chemical composition, and vital properties' of which are treated of at some length in Chapter IV. This portion has been greatly extended, and almost entirely rewritten; the great importance of the subject, in its bearings on Pathology as on Physiology, having been constantly kept in view.

"The fifth chapter, 'On the Primary Tissues of the Living Body, their Structure, Composition, and Action,' is essentially the same with the third chapter of the previous edition; but a large amount of new matter, in great part supplied by the elaborate 'Mikroskopische Anatomie' of Prof. Kölliker, has been incorporated in it; and many new illustrations, chiefly derived from the same source, have been introduced. The account of the vital endowments of the muscular and nervous tissues, previously contained in other chapters, has been transferred to this, so as to make it embody a complete sketch of those physiological actions of these separate parts of the organism, which are afterwards to be considered in their relations to each other.

"In conformity with the opinion expressed by some of his friendly critics, and by many teachers of Physiology, the author has reversed the previous arrangement of the chapters which treat of the functions in detail; those relating to the organic functions being now placed *before* those in which the animal functions are described, instead of *after*. This has involved a new distribution of much of the matter which was previously treated in a connected form in the chapter on the 'Functions of the Nervous System,' since it has appeared to the author very desirable that the whole group of actions whose aggregate makes up each function, should now be considered in its connection, and thus the movements of deglutition, respiration, &c., not having been explained, as was formerly the case, in the earlier part of the volume, are described, and their connection with the nervous system examined under each separate head. As their general relations to the nervous system are previously explained, however, in the sixth chapter, the author does not apprehend that any inconvenience will be experienced from this alteration.

"The series of chapters on the several organic functions remain essentially the same as in the previous edition; but important additions and corrections have been made in every one. Thus, in Chapter VII., 'On Food and the Digestive Process,' the whole subject of Food is much more fully discussed than heretofore; and the most important of the results obtained from the study of the digestive process by Frerichs, Bernard, and other experimenters, have been embodied in the account of it. In Chapter VIII., 'On Absorption and Sanguification,' the structure and development of the Ductless Glands have been more fully described, in accordance with the researches of Kölliker, Sanders, Ecker, Gray, and others, and their relation to the process of sanguification more clearly elucidated. In Chapter IX., 'On the Circulation of the Blood,' the causes of the heart's sounds have been more fully considered; a view of the nature of its rhythmical contractions has been suggested, which the author believes to be original; and the most important among the results of Prof. Volkmann's elaborate researches on the dynamics of the movement of the blood have been introduced. In Chapter X., 'On Respiration,' the most important additions to the first section are those which embody the results of Dr. Hutchison's inquiries on the movements of respiration; to the second, the data furnished by the researches of MM. Regnault and Reiset, Prof. Scharling, M. Barral, and others, upon the amount of oxygen absorbed, and of carbonic acid exhaled; whilst the third, in which the 'Effects of Suspension or Deficiency of Respiration' are discussed, has been largely augmented by a summary of the evidence afforded by our recent experience, of the marked tendency of an habitually imperfect respiration to produce a liability to zymotic disease. Nearly the whole of Chapter XI., 'On Nutrition,' has been newly written for this edition. In Chapter XII., 'On Secretion and Excretion,' important additions have been made under almost every head; and those parts, especially, which relate to the agency of the excretory apparatus in maintaining the purity of the blood, have been extended. This chapter, however, is less comprehensive than formerly; several of the subjects which it previously included, having been transferred to portions

of the work in which they seemed to find more appropriate places; the salivary and pancreatic secretions being now treated of in the chapter on Digestion, and those of the testes and mammæ in that on Generation. Of the three subjects included in Chapter XIII., 'On the Evolution of Heat, Light, and Electricity,' the first alone had been systematically considered in the previous editions, and this has been considerably extended in the present. Under the second head, will be found some very curious observations on the evolution of light in the living human subject; and under the third is given a summary of the admirable researches of M. Du Bois-Raymond, which have been recently brought before the scientific public in this country by Dr. Bence Jones.

"It is in the Chapter (XIV.) devoted to the Functions of the Nervous System, which constitutes one-fifth of the entire volume, that the greatest additions and alterations will be found. This subject, in its Psychological as well as in its Physiological relations, has occupied more of the author's attention than any other department of Physiology; and he now offers the more matured fruits of his inquiries and reflections, with some confidence that, even if his views should hereafter require modification as to details, they will be found to be fundamentally correct, and to furnish materials of some value in Psychological inquiry, as well as in the study of Mental Pathology." "The peculiar states which are known under the designations of somnambulism, hypnotism, mesmerism, electro-biology, &c., are all considered in their relations to sleep on the one hand, and to the ordinary condition of mental activity on the other; and the author ventures to believe that he has not only succeeded in throwing considerable light upon the nature of these aberrant forms of psychical action, but that he has been enabled to deduce from their phenomena some inferences of great importance in Psychological science.

"In Chapter XV., 'On Sensation, and the Organs of the Senses,' comparatively little change has been made; several additions have been introduced, however, and some corrections made. The next Chapter (XVI.), 'On Muscular Movements,' has been entirely remodelled; the portion which relates to the vital endowments of muscular fibre having been removed to Chapter V., Section 6, and its place supplied by new matter which contains many original views, especially under Section 4, which treats of the 'Influence of Expectant Attention on Muscular Movements.' Comparatively little alteration has been found necessary in Chapter XVII., 'On the Voice and Speech,' or in Chapter XVIII., 'On the Influence of the Nervous System on the Organic Functions;' an important addition has been made to the latter, however, with reference to the influence of the state of 'expectant attention' on the operations of nutrition, secretion, &c.

"The additions and alterations which have been made in Chapter XIX., 'On Generation,' will be found to be both numerous and important, especially under the section on the 'Development of the Embryo,' which has been almost entirely rewritten, so as to bring the view of this process more into accordance with the existing state of our knowledge of it. The author has not felt it expedient, however, to enter into minute details upon this subject.

"In Chapter XX., 'On the Different Branches of the Human Family, and their Mutual Relations,' all that directly relates to this subject has been considerably extended, and many novelties have been introduced; whilst those arguments for the specific unity of the human races, which are derived from the analogy of the lower animals, have been simply referred to, having been fully dwelt on by the author elsewhere.

"The closing Chapter, 'On Death,' has been almost entirely written for this edition; the subject having been only touched on incidentally in the preceding."

The additions by the American Editor are few, but appropriate—as he remarks: "Dr. Carpenter's untiring industry left him little to add beyond an occasional illustration of the text, or notice of more recent discoveries.

We fully concur with Dr. Smith, in the confident belief "that the present will more than sustain the enviable reputation already attained by former editions, of being one of the fullest and most complete treatises on the subject in the English language."

D. F. C.

ART. XVII.—*An Introduction to Clinical Medicine. Six Lectures on the Method of Examining Patients, Percussion, Auscultation, the use of the Microscope, and the Diagnosis of Skin Diseases.* By JOHN HUGHES BENNETT, M. D., F. R. S. E., &c., 2d ed., with wood-cuts. Edinburgh and London, 1853: 12mo. pp. 134.

THIS little book may be commended to the attention, not only of the student but of the practitioner of medicine. No one can profitably study disease who does not observe with method, who is not familiar with physical diagnosis, and (we may venture to add, with Dr. Bennett) with the use of the microscope. The first lecture contains instructions upon the proper method of examining patients. He recommends the plan taught by Professor Rostan, of Paris. "Its object is to arrive, as quickly as possible, at a knowledge of the existing condition of the patient, in a way that will insure the examiner that no important organ has been overlooked. For this purpose, we ascertain, in the first instance, the organ principally affected and the duration of the disease, by asking two questions: "Where do you feel pain?" and "How long have you been ill?" Let us suppose that the patient feels pain in the cardiac region, we immediately proceed to examine the heart functionally and physically, and then the circulatory system generally. We next proceed to those organs which usually bear the nearest relation to the one principally affected, say the respiratory system; and we then examine the lungs functionally and physically. We subsequently interrogate the nervous, digestive, genito-urinary, and integumentary systems. * * * * Lastly, we inquire into the past history of the case, when we shall have arrived at all the information necessary for the formation of a diagnosis." After mentioning the points for inquiry under these heads, and giving some useful hints upon the manner in which it should be conducted, he continues, "When the patient dies the examination is not completed." Insisting strongly upon the necessity of method and thoroughness in *post-mortem* researches, he says, "the object of an autopsy is threefold: 1st, the cause of death; 2d, an appreciation of the signs and symptoms; 3d, the nature of the disease." A brief summary follows of the facts which it is important to observe, together with general directions for conducting these examinations with propriety and cleanliness. In the two lectures upon percussion and auscultation, the account of these methods of exploration is ample and practical, and may be studied with advantage even by those who are no longer on the threshold of their professional career. Dr. Bennett's arrangement is very good, and his language being perfectly plain and intelligible, there is no difficulty for the learner in understanding the author's meaning.

The directness and perspicuity of the author's style is especially remarkable in his lectures on the use of the microscope. His directions for its employment are so clear, his illustrations of its advantages so apt, and the results obtained by it apparently so certain, and so easy of attainment, that one is somewhat at a loss to understand how, as a clinical adjuvant, it should have been so much neglected. Dr. B.'s familiar explanation of its mechanical construction, of the way to observe with it, and his account of its principal applications to diagnosis in the examination of healthy or diseased structure or secretions, will go far, we think, in inducing many to make a trial of its powers, who before may have been timid or skeptical. Dr. B. makes use of and recommends an Oberhäuser microscope (made for the use of physicians at his suggestion) as the most useful on account of its steadiness, power of easy adjustment, facility for observation and demonstration, and portability.

He objects to the bulk and complication of the London instruments, as also to the fact that, with lenses of a medium power, the amount of light is so great as to be detrimental to the eyes. He says: "I cannot employ Ross's fourth of an inch for fifteen minutes without feeling intense headache; and I know of more than one excellent observer, in whom the sight has so much suffered from this cause as to incapacitate them from continuing their researches. In the same manner the lenses of Brunner and Nacet give rise to a yellow light highly disagreeable;

while those of Oberhäuser, Shiek and Pistor, and Fraunhofer (with Arnici's and Pöcsel's, I am not familiar), present a pale blue light most pleasant to work with, and which may be gazed at for hours without fatiguing the eye." We must refer our readers for further details, and for information which it is difficult to find elsewhere, to Dr. Bennett's book.

The sixth and last lecture is upon the "Classification and Diagnosis of Cutaneous Diseases." Dr. B. adopts the classification of Willan, as modified by Bielt. With the view, however, of making it more simple and practical, he excludes from the order *exanthemata* and *pustulæ* the eruptive fevers—rubeola, scarlatina, erysipelas, variola, and vaccinia. His pustular class contains only impetigo, ecthyma, acne, and rupia. Those singular cutaneous affections which are not known in the English climate, he does not classify at all. As an introduction to the study of skin diseases, this lecture will answer a very good purpose, being concise, accurate, and practical. In fine, we cannot do otherwise than heartily commend this book for what it strictly is, an *introduction* to clinical medicine. Books of this kind are very much wanted, and, when confined to their legitimate province of opening the way to fuller research, they do not give that encouragement to superficiality and idleness which is often the unfortunate result of the popular manuals and compendiums. M. S.

ART. XVIII.—*On the Transmission, from Parent to Offspring, of some Forms of Disease, and of Morbid Taints and Tendencies.* By JAMES WHITEHEAD, M. D., F. R. C. S., on the Medical Staff of the Lying-in Hospital, and Lecturer on Obstetric Medicine, at Manchester, etc. etc. etc. London, 1851: 8vo. pp. 351.

THE study of what have been termed hereditary diseases is a most interesting one. It is one, however, that has been much neglected; instead of being based upon a cautious analysis and comparison of accurately observed facts, our present knowledge, in relation to it, is in the highest degree vague and conjectural. A female, labouring under certain forms of disease, may unquestionably give birth to a child affected congenitally with the same malady of which she is herself the subject. This, however, is comparatively a rare occurrence, and is not what is generally understood by the hereditary transmission of disease. Those maladies most liable to be transmitted from parent to child, seldom if ever present any indications of their presence at birth, most commonly not for many years subsequently; often, not until after puberty, and occasionally not until after the meridian of life has been attained or even passed. They are hereditary in predisposition only. When they do occur, they are produced by the same class of exciting causes as induce them in those who inherit no particular predisposition. The predisposed simply exhibiting a much greater susceptibility to the influence of these exciting causes than the latter, and, hence, becoming liable to the occurrence of certain maladies under a much slighter degree of exposure to their causes.

The diseases to which a predisposition is inherited may be warded off, or even the predisposition itself abated, if not entirely eradicated, by a correct hygienic course of life. Many well-authenticated instances could be adduced in which, in this manner, a manifestly inherited tendency to gout, tubercular phthisis, epilepsy, and insanity has been counteracted. This we believe will account very satisfactorily for the immediate offspring of parents labouring under one or other of those diseases most liable, according to general observation, to be transmitted from parent to child, having lived to an advanced age without its occurrence; while, in their offspring, the disease has early presented itself. The course of life of the first, adopted either upon hygienic principles or from necessity, removing them from the influence of morbid causes, they in consequence escape disease, notwithstanding their inherited predisposition; but transmitting this predisposition to their children, in these latter disease becomes developed

whenever their occupation and modes of living bring them under the action of its exciting causes.

In order to transmit a predisposition to certain forms of disease to their offspring, it is not necessary that the parents should actually labour under these themselves. Various causes, as impure air, bad or deficient nutriment, neglect of cleanliness, improper clothing, indoor confinement, dissipated or licentious living, ill-assorted marriages, trouble, grief, and the depressing passions, generally, by which the regular performance of the several organic functions in the parents are disturbed or impaired, will very generally, even when insufficient to produce actual disease in them, impart to their offspring a more or less decided predisposition to disease, which, unless counteracted by proper hygienic measures, may be transmitted through many generations.

Hence, we find that among certain classes of society in Europe, exposed to physical privation and moral suffering, who live together in the same unwholesome localities, intermarry within their own circle, and pursue alike the same vicious course of life, a predisposition to disease is the inheritance entailed upon the children, even to the third and fourth generation.

In the work before us, the subject of inherited predisposition to disease is very ably investigated; and the subject, in one of its most important bearings, illustrated by a consideration of transmitted syphilis.

Though we cannot agree with Dr. Whitehead in all his conclusions, we return him our thanks for having directed especial attention to the subject. We do not believe that an accidental defect in either parent, as, for instance, the loss of a limb, the distortion of a joint, or the cicatrix produced by a burn or wound can be transmitted to the child. We have no reason for believing that, under any circumstances, a defect of parts artificially produced can be entailed by the parent upon the child. Conate deficiency or redundancy of parts are thus transmitted, occasionally, we admit, though very rarely. But the two cases are by no means parallel; the latter cannot, with any propriety, be adduced in proof of the possibility of the first. If, in any instance, we should expect to find a deficiency of parts, artificially produced, to be transmitted from parent to child, it would be in the case of those in whom, for so many generations back, the prepuce has been removed in the rite of circumcision. I have conversed with some of the oldest and most intelligent operators in this country, who assure me that they have not observed any remarkable difference between the prepuce of a Jewish child before circumcision, and that of other children.

Dr. Whitehead is a believer in the power of the imagination of the mother over the foetus in utero. He supposes that peculiarities of structure and function, whether morbid or normal, in the foetus during the term of its intra-uterine life, may be induced by external impressions which operate on the system of the new creature through the imagination of its mother, or even where the impress is limited in its effects to merely physical inconvenience. He adduces two or three cases in support of this opinion; two of them very curious, apparently very apposite and conclusive; we must confess, however, after an attentive perusal of them, they have not convinced us of the correctness of the opinion they are adduced to support: the remaining cases have little or no bearing upon the position assumed by Dr. Whitehead.

Much the larger portion of the treatise is devoted to the subject of transmitted syphilis. The author's descriptions and therapeutical directions being founded on extensive personal observations, have great value in a practical point of view. The following extract from the preface will give to our readers a general idea of the conclusions of Dr. Whitehead.

"Besides confirming the statements relative to the transmission of the syphilitic taint from parents to their children, even from parents in whom all external evidence of the disease had ceased to exist; the inquiry," Dr. W. remarks, "may also contribute towards the further elucidation of another fact of equal importance; that, namely, of the derivation of certain forms of disease, commonly considered as of a simple nature, from imperfectly cured syphilis; a doctrine much more generally believed in by physicians of past ages than by those of the present day. Children who had exhibited evidences of constitutional syphilis of

a genuineness which could not be doubted, both on account of its form and of the antecedent circumstances, were seen, some time after the first accession of symptoms had been subdued, to have relapses, at intervals varying from one to several years; the character of the disease undergoing certain changes in some of its phases, at each recurrence, but still retaining one or more of its essential attributes. In course of time, however, it gradually altered, assuming, at a later date, more the type of disease not commonly deemed to be of syphilitic nature. For example, an infant of syphilitic parents has an attack of syphilitic erythematous disease in the second week after birth; this is speedily subdued by treatment, and the child thrives for a time. During the period of teething, or after that of weaning, an eruption of vesicular or squamous character breaks out, attributed usually to error in diet or to atmospheric influences. This also may be modified, or even made to disappear by remedies in common use. At the second teething period, often much earlier, impetiginous eruptions come out on the scalp and elsewhere, with enlarged lymphatic glands about the neck, these symptoms partaking less of the venereal character than those of earlier date. At a still later epoch, the hypertrophied glands become more prominent, some undergoing the process of suppurative inflammation, and the patient is considered to be decidedly scrofulous, the secreted matter possessing the sanio-flocculent character of scrofulous suppuration. In this way the purulent, the scrofulous, or other morbid habit of body is developed; liable to manifest itself each in its particular way, at certain critical periods of life, especially at puberty; or it may be brought into active existence by external agencies at any period, in form of chronic abscesses, arthritic affections, or white swellings, or laryngitis terminating in fatal diseases of the lungs; or the latter malady may be produced more directly by tuberculous deposit, or abscess of these organs, having in like manner a disastrous result.

"In other instances disease of the mucous tissues develops itself, the direct effect of perverted nutrition, with impairment of the assimilative function of the solid fabric. Thus the rachitic diathesis is determined. These and other immediate sequelæ of syphilis may be modified to a certain extent by treatment, but, should the cause be not fairly understood, the proper remedies are not applied, and the taint remains, to a certain extent, as a constitutional evil destined to stamp its character upon generations to come.

"On comparing the morbid phenomena thus brought about, the history of which has been carefully traced from the beginning, with others of similar aspect whose history is not known, one is led to inquire more minutely into the etiology of those affections usually regarded as of simple or rather unknown origin. In several instances of this kind, submitted to rigid investigation, it has appeared highly probable that such agencies were in operation immediately previous to the first appearance of such symptoms.

"I do not by any means attribute the origin of all cases bearing but a remote resemblance to those directly resulting from syphilis to causes of a specific nature. My wish is, having satisfied myself respecting the specific sources of some, to direct more particular attention to the subject. I have known a family of children, whose father suffered from both acute and secondary syphilis in early life, of which he was considered perfectly cured before marriage, but who had, notwithstanding, a most violent attack of secondary disease of long duration, in form of cutaneous eruptions and burrowing inguinal abscesses, commencing twelve months after marriage, and without any additional infection; his wife suffering at the same time under a train of symptoms of like nature. Two of the daughters died, before the age of twenty years, of phthisis, complicated with white swelling of the knee, in both cases diseases which had previously been unknown in the family of either parent. The two sons suffered from syphilis in the usual form during infancy and childhood, the traces of which existed in adult life. The offspring of one of these bear evidence of the same taint in characteristic form. I was personally acquainted with these individuals, and had the early history from the father himself, a man of education and probity.

"The perpetuation of syphilis is a fact sufficiently known. A case will be found in the following pages of its continuance to the fourth generation, on what I deem satisfactory evidence. In another instance, where this form of

disease existed with great severity in the second remove, in the person of a husband, the wife and offspring suffered from syphilitic symptoms of an unmistakable character, of which the latter perished. I have no means of determining the mode of origin of this malady in the first-named example; and the evidence in the second was, unfortunately, of a hearsay kind only, but it was strongly in favour of its specific nature. In a third instance, however, in which the disease was well marked in a husband, and proved fatal to both his wife and a numerous offspring, the evidence of its syphilitic origin was conclusive, or at least as convincing as such kind of evidence commonly can be. This case, should its historical validity be admitted, leads to the inference that the disease in the two preceding instances may have had a similar commencement.

"With reference to the treatment of the class of diseases under consideration, my opinion, after a varied practice in this department, remains very nearly the same as it was four years since. Whether the taint be of recent or of ancient date, I have invariably found it necessary to pursue a mild but prolonged course of treatment by means of the class of remedies denominated alteratives, aided, at the proper stages, by sea water and mineral baths, change of climate if practicable, and a rigid system of hygiene practised through a long period."

Dr. Whitehead considers that the transmission of a predisposition to disease is through some morbid condition of the blood existing in the parent, and by him communicated to the child. It would, perhaps, be more correct to say that a tendency to derangement in the organs concerned in the production and elaboration of the blood was transmitted by diseased parents to their children, as the mode in which a predisposition to disease is entailed upon the latter. The opinion of Dr. W. is thus expressed:—

"There can be little doubt that in all diseases to which a predisposition is inherited, the blood is the part of the system where the germ of the hidden evil is to be found, the pabulum which fosters its existence and growth, the agent by which its presence at length becomes more palpably manifest, and the medium through which alone we can remedially or curatively operate.

"It is highly probable that the blood, if carefully analyzed soon after birth in an individual so circumstanced, would be found to possess some characteristic peculiarity in the arrangement of its elemental constituents; that this peculiarity in most instances, if further examined, would be seen to increase progressively with the growth of the body, without interfering, for a time, with the healthful discharge of its functions. But it is only to a certain extent that the changes here implied are compatible with a state of health; a degree of disproportion is sooner or later arrived at, under which the blood becomes unfitted for the various organic requirements, and the subsequent changes, if uninterfered with by treatment, are rapid and destructive. It is unknown to what extent the blood elements may deviate in their relative proportions from what is considered the healthy standard, without visibly prejudicing the integrity of the system. In spontaneous anæmia, a disease whose proximate condition consists in deficiency of the globuline, Andral found that when the cachectic changes first presented themselves, this element of the blood had already become considerably reduced in quantity. In sixteen patients whose blood he analyzed while the disorder was yet in the incipient stage, the average amount of the globuline had fallen from 130, its healthy standard proportion, to 109 per 1000; and, in twenty-four cases in which the analysis was practised at a more advanced stage, the average was only 65 per 1000." D. F. C.

ART. XIX.—*The Nature, Symptoms, and Treatment of Consumption.* Being the Essay to which was awarded the Fothergillian Gold Medal of the Medical Society of London. By RICHARD PAYNE COTTON, M. D., &c. &c. London: 8vo. pp. 286.

Dr. Cotton's position, as assistant physician to the "Hospital for Consumption and Diseases of the Chest," gives value to his opinions upon the treatment

of phthisis. We propose to notice this portion only of his work, since his remarks upon the nature and symptoms of the disease do not call for any comment. In treating of the prevention of this disease, the author very justly condemns the too common practice of "physicking" children for every trifling ailment; he thinks that it may entail upon them a feebleness of constitution, by which they may become more apt to acquire diseases of a tuberculous or scrofulous nature. While, also, he advocates the employment of proper precautionary measures, and gives rules for the observance of a proper diet and medication, he disapproves of that excess of carefulness by which often the body becomes so enervated as to unfit it for bearing the slightest exposure. It is in the early stage of phthisis, before the deposit of tubercle can be ascertained, that the success of treatment is the most frequent and conspicuous. Dr. C. inculcates the great necessity of attention to the diet of children; he recommends animal food as "almost indispensable," change of air and outdoor exercise. Iron and cod-liver oil, together or alternately, are particularly useful at this age. "The glandular enlargements, more particularly about the neck, which often complicate these cases," he says, "should be but little interfered with, especially when there are threatenings of tuberculous deposit elsewhere. I have seen the healing of strumous cervical glands rapidly followed by scrofulous disease in more important organs; and, on the other hand, I have known the supervention of some glandular affection at once check the progress of tubercular degeneration in other parts."

We cannot find anything particularly new in Dr. C.'s treatment of the disease when fully established; he meets its symptoms and complications with the latest and best remedies. He confirms the statements of Dr. T. Thomson, with regard to the usefulness of the trisnitrate of bismuth in the diarrhoea of phthisis; he gives it in doses of five grains every four or five hours. In the laryngeal complications of pulmonary phthisis, the author has used, with great advantage, Dr. Horace Green's instrument for the introduction of a strong solution of nitrate of silver into the opening of the larynx. He says: "I have known the voice regained, the irritable cough removed, and the tenderness and difficulty of swallowing dissipated entirely by it; indeed, I think we might almost speak of its curative effects (so far at least as the larynx is concerned) in some very early cases." "I would not advise it to be practised, however, when there is reason to believe that the mucous membrane is *extensively* ulcerated, nor when the pulmonary disease is in a very advanced stage, and the strength of the patient much exhausted." He states that he has known the practice to be prejudicial under these circumstances, increasing the cough and weakening the strength of the patient. Dr. C. considers inhalations to be of very trifling use in this complication.

The author has had a large experience with the cod-liver oil. We subjoin the results taken from a table of one hundred cases in which he employed this remedy, *these* being "selected from many others upon no other grounds than the completeness of their history."

"Thirty-one patients were *greatly improved*; twenty-one of these were in the first stage; six in the second stage; and four in the third stage. Of those in the first stage, five entirely regained their health, and, were it not for the chance of a relapse, might be fairly said to have been cured; nine resumed work, enjoying a complete arrest of their disease; and seven failed to report themselves finally at the hospital." * * *

"Twenty-six patients were *moderately improved*. Of these, eighteen were in the first stage; four in the second stage; and four in the third stage." * *

"In forty-three cases, however, no improvement was observed." * * * These were also in various stages of the disease. Eleven were known to have died, many were obviously becoming worse when last observed, and several ceased attending at the hospital."

It may be seen that Dr. C. claims no case of cure after the first stage of the disease, and even speaks with some reserve of the ultimate chances of those five whose health to all outward appearance was perfectly restored. Dr. C. did not observe that the degree of improvement was in proportion to the increase of weight, several who had gained the most, not being the most im-

proved. "Two remarkable cases will be seen, in which the weight was augmented, one to the extent of three ounces, and the other to that of twelve ounces weekly, although at the same time the tubercular disease was advancing; in one of these death took place suddenly; the other was lost sight of, but was supposed to have ended fatally." Dr. C. uses the pale oil. He says: "None should be employed which is not clear, pale, and as nearly as possible tasteless; the dark coloured and impure oils, which were at first thought superior to the others, are unfit for use," on account of the disgust and nausea they produce. It should be taken midway between meals, and in some agreeable vehicle; the author recommends new milk or some light wine. He thinks the emulsions given to disguise the odour and taste, are far less beneficial than the pure oil. The addition of hydrocyanic acid or of creosote he has often found effective in making the oil agree with the stomach; in other cases a light bitter answers the same purpose. Dr. C. states that he has made repeated trials of the train oil, spermaceti oil, and neat's-foot oil; as well as of linseed, almond, and olive oils. The animal oils were productive of a marked improvement in the patient's condition, but still inferior to the cod-liver oil. The above-named vegetable oils were given in thirty cases, in all of which the improvement, if any, was very trifling. "It was singular, indeed, to observe the rapid improvement which often followed their exchange for the *oleum aselli*." Upon one occasion, after the linseed oil had been taken for nearly a month with no success, the cod-liver oil completely restored the patient's strength, and added to his weight one stone and one pound within six weeks; and, in another example, after having prescribed the linseed oil apparently with signal success, the health being improved, and the weight greatly increased, he discovered that the hospital supply having become exhausted, the patient, dissatisfied with his improvement, had been taking, of his own accord, the *oleum aselli*.

Dr. Cotton's book is a good, clearly written, and practical treatise, with no pretensions to novelty, but accurate and thorough, although sufficiently concise. We think the author has found the golden medium between brevity and prolixity. The award of a gold medal to this essay, by the Medical Society of London, proves how highly it was thought of by the profession in that city.

M. S.

ART. XX.—*A Discourse on the Times, Character, and Writings of HIPPOCRATES; read before the Trustees, Faculty, and Medical Class of the College of Physicians and Surgeons at the opening of the Term of 1852-3.* By ELISHA BARTLETT, M. D., Professor of Materia Medica and Medical Jurisprudence. New York, 1852. Published by the Class. 8vo. pp. 72.

FROM the exordium of this discourse, it appears that Dr. Bartlett selected his subject in despair of being able to say anything new upon the customary topics of introductory lectures. In former addresses, he had already run the round of those exciting themes which he now somewhat disdainfully recalls, as one might allude to juvenile follies that deserve less blame than pity. In his weary search after a topic that he may handle with less repugnance, he is content with no resting-place until he finds himself hard by the shrine of the Coan Esculapius. Here, indeed, was a natural termination to his journey; and it is no wonder that he paused before the temple to admire "its Ionic columns, and its ornamented friezes of Pentelican marble, glittering and flashing in the sunlight, as he watched them through the swaying branches of the ancient oaks, chestnuts, and elms, that make the sacred grove of the temple." No wonder that he is unable to depart; for "near a column of the temple, and holding a roll of papyrus in his left hand, stands HIPPOCRATES," surrounded by a crowd of youths, whose earnest and intelligent faces, whose dress, air, and bearing, "show plainly enough the superior refinement and culture of the class to which they belong." In such company, he might well

be contented to remain, and it is natural that he should take pleasure in bringing his hearers into the same august presence.

Dr. Bartlett evidently is not of their way of thinking who fancy that the sun of science rose when their own particular star glimmered above the horizon, and must reach the zenith when it shall culminate; but rather that the luminaries of science, like the hosts of heaven, are forever sweeping onward, and diffusing a not unequal light upon the successive portions of time and space. He feels sure that his auditors will not neglect the present; they are governed by human motives, and interest will not permit them to be negligent of what will palpably serve their ends. But he is not quite persuaded that they are out of danger of, if not already converts to, the heresy which denies the unity of science, and makes its sectaries blind to the ties which link the present to the past. He therefore thinks it well to remind this stripling time that it had no such miraculous origin as Minerva, but is the product by ordinary generation of many centuries, and bears in its form and features the proofs of its long and honourable descent.

It is a pity that the student had not more leisure for obtaining such a knowledge at least of medical history as might allure him to a personal investigation of the sources of the science and art he professes to cultivate. There is no room for it as an adjunct to any one of the courses of instruction he now follows, crowded as each already is with its own proper subjects, and no time for it in the brief five months which in the leading schools are devoted, during the first year, to making the student feel bewildered by the multiplicity of new ideas presented to him, and, during the second, to leading him the same paths over again with a somewhat less faltering step. But there might be found in some of our more eminent colleges a certain number of third-course students, who, with the more cultivated of the resident graduates, would gladly form a class for a lecturer capable of treating the History of Medicine in a proper spirit. Such a spirit we conceive to be different from that which has inspired nearly everything that has been written upon this subject. Histories of Medicine have, for the most part, been chronicles of contending sects, analyses and comparisons of hostile doctrines; doctrines which, whether victor or vanquished, have been buried under the waves of time. To the young, especially, the narrative of such contests is fastidious in the extreme; they exclaim of the lecturer, as Hamlet of the player, "What's Hecuba to him, or he to Hecuba?" they can feel no interest in the quarrel for a prize which long ago became worthless. But were the discourse of what was actually known to the ancients; did it estimate and measure the gradually rising heap of positive knowledge; did it trace the stream which now supplies us to its fountain, and describe the tributaries which from time to time swelled its flood, rather than picture the gayly decorated barks which float, and ever and anon fight, upon its surface, it would then inspire more respect for the past, more zeal for the present, and more hope for the future. We throw out this hint merely; the occasion will not permit us to develop it. An expression of the thought was prompted by the estimate which Dr. Bartlett, in common with many others, sets upon the method of medical observation which Hippocrates inculcated, and which for the last half century has been growing to be more and more dominant in the schools which have most illustrated our profession.

Dr. Bartlett finds in the *oral* teaching of Hippocrates one of the main elements of its success. The following passage may be commended to those eminent gentlemen who do not fear to assign a secondary place to this method of instruction:—

"One of the most potent agencies in the development of Greek intellect, and the advancement of Greek civilization, consisted in the general prevalence of public teaching and recitation. For many successive centuries, it was from the living lips of bards and rhapsodists, kindled with coals from the glowing altars of patriotism and religion, and not through the medium of any cold and silent written records, that the immortal strains of the Iliad and the Odyssey rang through the land, and were made literally familiar as household words."

The author, then, quaintly enough says we may imagine what would constitute the theme on "the opening or closing of one of his courses of instruction—

the Introductory Lecture, or the Valedictory Address to the graduating class of the school of Cos, at the term of the first year of the 95th Olympiad. . . .

"He would have warned his hearers against the seductive but dangerous influences of the philosophers. These men, he would have said, are, for the most part, idle dreamers, and they are nothing else. I know them well. They affect superior wisdom, and they look down disdainfully upon the physician, and the patient observer of nature. They seem to think that the economy of the universe, including the human system in health and disease, can be ascertained and understood by a sort of intellectual divination, which they call wisdom and philosophy, but which is in reality only empty hypothesis and idle speculation. He would then have entered into an examination of these systems; he would have exhibited their radical errors and defects—he would have compared them with the humbler philosophy of observation and experience, and he would have shown that they had accomplished nothing, and that in the very nature of things they could accomplish nothing, for the advancement of real knowledge."

By way of helping to explain the wonderful acquirements, and the still more wonderful wisdom of Hippocrates, the author reminds us of the fact that he lived in perhaps the most intellectual age since the birth of civilization—the age of Pericles—when Phidias, and Æschylus, Sophocles, Euripides, Anaxagoras, Socrates, Democritus, Herodotus, Thucydides, Xenophon, and Aristophanes, were building up a fame which is still undiminished, and must flourish while the world endures. The glory of the first great physician is, and can be, no less than theirs. We cannot follow the author in his sketch of the state of Grecian civilization when these heroic figures appeared upon the stage, nor in his enumeration of the sources of knowledge whence his subject drew his stores of wisdom; but we must join with him in regretting that the athletic exercises by which the grace and vigour both of body and soul were developed in the Grecian youth, should be so generally neglected in our own time. How much freer scope would the spirit have, and to what loftier heights would it not soar, but for the poison, born of stagnation, which infects the blood of modern generations. Mental and moral health are most apt to be united with masculine vigour and activity.

It is unnecessary to accompany the author either in his analysis of the works of Hippocrates, or his inquiry into the origin of Greek Medicine. To sketch them would be merely to hold up the shadow of a shade, to embody the essence of an abstract. There is in connection with the last-named subject an idea which is equally striking and just. Dr. Bartlett, in opposition to those who trace the medical knowledge of Greece to Egyptian sources, is disposed, we think, to undervalue these latter. However this may be, his illustration is still elegant and apposite. "If," he remarks, "Greece received anything from Egypt, it was like the wheat taken from her dark old sepulchres, where it had lain dormant for ages, and which germinated, and brought forth its full-headed and golden sheaves, only when planted in her own pregnant and prolific soil."

In the latter part of his discourse, Dr. B. rehearses the famous oath which is called after the name of Hippocrates, and which, it may be hoped, is familiar to most of our readers. Most heartily do we concur in the wish of the lecturer, that the use of this, or some equally solemn adjuration, might be revived on the commencement days of our medical colleges. It would be a noble spectacle to see a band of young men arise, and with outstretched hands pledge their honour to observe the moral and professional laws of the brotherhood into which they are entering. It would add one more to the many restraints which daily examples of misconduct and disgrace show to be more necessary now than ever:—

"It has often seemed to me a matter of regret, that this old usage should not have been continued. There is danger, I think, in this intensely practical and utilitarian age, that we may undervalue the influence and importance of these moral sanctions—of these appeals to our higher nature. The study and the practice of our art stand in need, both of them, of all the elevating and ennobling influences that can be brought to act upon them. And this formal and religious recognition of his duties, by the young physician, would be as

appropriate and becoming, as it would be salutary and preservative in its influences. If our art is not strictly divine, it has duties and relations that are sacred—there is something sacerdotal in its offices and character, and it would be well for the young physician that his assumption of its responsibilities and obligations should be attended, like the consecration of the ancient priesthood, with the pomp of solemn and significant ceremonial."

With this quotation we close our notice of a Lecture. which, in style of expression, range of thought, and quality of sentiment, is much above the ordinary standard of occasional discourses.

A. S.

ART. XXI.—*An Inquiry how far Consumption is curable: with Observations on the Treatment, and on the Use of Cod-liver Oil and other Remedies; with Cases.*

By JAMES TURNBULL, M. D., Physician to the Liverpool Infirmary, &c. &c. Second ed., enlarged. London: Churchill, 1850: 8vo. pp. 106.

DR. TURNBULL arranges his evidence in favour of the curability of consumption under the following heads: 1st. *Evidence from pathological facts.* The absorption of tubercle, which Dr. T. considers to be no longer of doubtful occurrence; its obsolescence, as described by Rokitansky; the calcareous concretions so often found in the lungs in the midst of tubercles, or contained in an old tubercular cavity; the cicatrices which are found, indicating the healing of vomices, are all referred to by the author as affording valuable proof of the curability of the disease. The two last pathological facts enumerated, he says, "are not by any means rare, indeed they are very common." In support of this assertion, the statements of Rogée, Boudet, and Dr. Hughes Bennett, of the frequency with which they met them in their examinations, are quoted by the author. These reports are probably familiar to most of our readers. After showing what evidence of the curability of consumption may be gathered from "*the change produced in the symptoms,*" and still more clearly from the amelioration revealed by the *physical signs*, the author comes to the *statistical proofs of its curability.* Reference, however, is only made to the Report of the Hospital for Consumption; from which it appears that complete restoration to health was effected in 4.26 per cent. of the cases. The most favourable results were obtained in the first stage; "nearly one-half were much relieved." The author, in the next chapter, speaks of the influence of emphysema of the lungs in retarding the progress of tubercular disease, and expresses the opinion that pregnancy has a marked influence of the same character.

Dr. Turnbull's management of the disease presents no peculiarity. He thinks highly of the cod-liver oil, and perseveres with it when it does not disagree with the stomach, increasing its efficacy by creosote, or by the iodide of iron. He uses counter-irritation, local inunction of the iodide of lead, and the usual palliative treatment for cough, diarrhoea, and other complications. Finally, the author reports thirteen cases of his own, gathered from hospital and private practice, to show the curability of consumption. We accept them as affording gratifying evidence of the happy effect of judicious treatment; if we must be reserved in expressing belief in the full recovery of these cases, or venture to doubt the accuracy of diagnosis, in view of the very rapid manner in which health was regained, it is not by any means from want of belief in the possibility of the disease being arrested occasionally at any stage, but from the absence of sufficient evidence in these cases reported by the author. The hopeful view his experience has enabled him to take of the curability of phthisis, is encouraging and worthy of imitation, if only it might induce some to abandon the common palliative routine practice, who follow it from an apathetic view of the value of medical resources.

M. S.

ART. XXII.—*Recherches sur les Calculs de la Vessie, et sur leur Analyse Micro-Chimique. Thèse pour le Doctorat en Médecine. Présentée et Soutenue par* SAMUEL LEE BIGELOW, M. D., etc.

The Micro-chemical Examination of Vesical Calculi. By SAMUEL LEE BIGELOW, M. D.

THE essay, whose title we have thus briefly translated, is a thesis, presented to the Faculty of Paris, by a candidate for the honours of its degree. The author, Dr. S. L. Bigelow, an American, has been successful, and we understand that his thesis has attracted considerable attention among those whose studies have taken a similar direction. With the thesis is an atlas of plates, admirably accurate, and drawn by the author himself with great artistic skill.

During his investigations, Dr. Bigelow analyzed about four hundred calculi, comprising the whole collection in the Dupuytren Museum at Paris.

The first chapter contains an elaborate review of the ultimate elements of calculi, and a comparison of the results of other observers, both French and English. Since these analyses gather part of their interest from having been made upon the calculi of different races and in different countries, we regret that Dr. Bigelow has not added the results of Dr. Peters's analyses of calculi in the museum of Transylvania University.

After a classification of vesical calculi, founded upon their organic, inorganic, or mixed nature, each element is reviewed in turn with a view to its chemical and physical characters.

Before noticing the distinctive and most original part of this essay, we must point out one or two errors into which Dr. Bigelow has been led. Thus, in speaking of that rare calculus, uric oxide, he states that it has been only once observed and analyzed (Mardet). There are, however, a number of such calculi on record; and, after the elaborate examination and analysis of a large uric oxide calculus by Liebig and Wohler, we can no longer regard its existence as doubtful.

Although Dr. Bigelow's analyses were carried even to the detection of those elements which, like iron, exist in but small amount, he does not seem to have met with sulphur in any calculi save those of cystine. We have found it almost always in vesical calculi. Iron is found in vesical calculi as frequently as copper may be detected in biliary concretions.

Chapter fourth contains a very admirable description of the mode of analyzing calculi, and of the application of the microscope to chemical uses.

Since our appreciation of chemical tests depends upon the appearances which reactions and precipitates offer to our eyes, there may be differences so minute as to force us to resort in turn to other and secondary tests. In place of this, Dr. Bigelow carries on almost all his processes upon the field of one of Næchet's new chemical microscopes, invented, we believe, by Professor Lawrence Smith.

We will not attempt to trace Dr. Bigelow through his processes. It is enough to say that the crystalline or amorphous forms of precipitates become plain upon the field of our glass. Evaporations take place, crystals form and are redissolved, and the action of reagents is viewed all within the compass of a drop of fluid. This Lilliputian chemistry becomes very convenient when we work, as we often must, with very small amounts.

When once micro-chemistry has become, as it promises to become, a science, we shall place our precipitates under our lenses, and there ascertain their nature from our knowledge of the proper forms of their crystals, or from their amorphous nature. Already we note the approach to this in the care with which Lehmann has indicated the minute crystalline form of the substances which are treated of in the first volume of his Chemistry.

The observer who shall do for chemistry generally that which Dr. Bigelow has here done for the chemistry of vesical calculi, will greatly lessen the labours of those engaged upon qualitative analysis. At the close of his essay, the author gives us a very good drawing of the microscope with which his researches were conducted. It is so arranged that the optical portion of the instrument lies below

the platform, and consequently out of reach of the fumes of chemical reagents, which may therefore be employed with the utmost freedom.

Dr. Bigelow, in his beautiful plates, has given us the forms of almost all the precipitates met with during his analyses. Some of these forms are new to us; others we recognize from personal experience as perfectly accurate representations of their several classes.

We are glad to learn that Dr. Bigelow is already engaged upon a more extensive work on the Urine of Health and of Disease, and we hope to have the pleasure of laying his results before our readers at a future period.

The essay which we have thus glanced over is the first definite advance towards the development of micro-chemistry as a practical everyday resource of the analytical laboratory. With this feeling, we congratulate Dr. Bigelow upon the contributions thus made to the science of analysis. S. W. M.

ART. XXIII.—*Records of Maculated Typhus or Ship Fever, with Suggestions of Treatment. Being the Result of a Series of Observations made during the prevalence of this Disease at South Boston and Deer Island Hospitals, in 1847-48. With Plates.* By J. B. UPHAM, M. D. New York, 1852: 8vo. pp. 60.

THESE records, published originally in the *New York Journal of Medicine*, present a very excellent delineation of the character, course, and ordinary *post-mortem* appearances peculiar to the typhus fever usually met with among the immigrants from on board of the crowded and often badly provided passenger ships, which of late years have arrived in such rapid succession in most of the Atlantic ports of the United States, with judicious suggestions in reference to the treatment of the disease.

To the correctness of Dr. Upham's delineation of ship fever, we can bear testimony, having had an opportunity of seeing much of it at the Lazaretto Hospital of this Port, during our service as a member of the Board of Health. But the most interesting part of the present records is, that in which the morbid anatomy of a most grave and frequent sequel of the disease is pointed out. This is a diarrhoea, attended with frequent exhausting discharges from the bowels, always thin in consistence, and, though at first of a light colour, becoming, if the patient does not speedily sink, dark and extremely offensive.

"It commonly made its appearance," remarks Dr. Upham, "during the latter stages of convalescence, and was brought on by imprudence in diet, especially if accompanied by premature exposure to cold and wet. But, sometimes it could be traced to no satisfactory cause. Its importance in a therapeutical point of view will be recognized, when we state that, at both the hospitals named, it was the cause of the majority of the deaths that occurred from typhus, up to the time the autopsies detailed in the following cases were made."

The frequency of the occurrence of the sequel to typhus fever here alluded to, and its uncontrollable and destructive character, were noticed in the cases which fell under our notice at the Lazaretto Hospital of the Port of Philadelphia. To the consideration of its pathological causes, the attention of Dr. Upham was early directed at the House of Industry, at South Boston, in the spring of 1847.

"Its intractability to the ordinary remedial measures, and its almost invariably fatal termination, were well calculated to rouse inquiry and investigation. We had been able to find no account of its morbid anatomy among the British writers, and had, up to this time, made no *post-mortem* examination of such cases, with a view to ascertain, if possible, the pathology of this sequel to the fever, on which might be based a rational plan of treatment: a series of clinical and autopsical investigations were instituted, the results of which are given in the pages which follow. These results, so far as we can learn, had previously been unknown, or wholly overlooked. To our view, they have an important bearing on the therapeutical management of the fever, in both its primary and secondary forms, and will tend to throw light upon the mooted points in its pathology."

Five cases are detailed in which the secondary lesion presented itself. The average duration of the fever in these cases was sixteen days; that of the secondary affection, thirteen days. The period in the convalescence, in which the diarrhoea first manifested itself, was the nineteenth day; and from the first accession of fever, the forty-seventh; which last two conditions, Dr. Upham remarks, would fall short, were a larger number of cases given.

We present the pathological appearances discovered after death, in one of the cases given by Dr. U.; it will convey to the reader a correct idea of their character.

"Externally, there appears some discoloration of duodenum, and upper part of jejunum, more at lower half of ileum, descending colon, and rectum. Both small and large intestines contain in every part a grayish, pulaceous fluid, in considerable quantity. A few small collections of fecal matter, in colour and consistence like chocolate, found in lower portion of ileum. Veins of submucous cellular tissue a little engorged in duodenum and upper part of jejunum; mucous membrane in these portions natural, as also throughout remainder of jejunum and upper half of ileum, from which point injection begins to be marked, accompanied by thickening. This condition of the membrane increases till within about two and a half feet from ileo-cæcal valve, when both the congestion and thickening become strongly marked, appearing here and there, for the space of a few inches in extent, in the form of transverse lines raised from the general surface. Near the ileo-cæcal valve, to the extent of four inches, this ridged appearance is remarkable—the elevations being from a line to a line and a half in height, and one or two lines in breadth. Within a couple of inches of the cæcum, are observed a few points of ulceration, of the size of a pin's head, extending partly through the mucous coat. In but one instance are Peyer's patches visible, it here presenting in a slight degree the shaven-beard appearance, the thickening elsewhere noticed ceasing at the border of the patch, giving it a depressed appearance. The cæcal extremity of colon shows considerable congestion and thickening, with commencing points of ulceration; these appearances increase along the ascending and transverse portions, and are still more marked in descending portion and upper part of rectum. None of the ulcerations in this case exceeded in size a split pea; they are confined to the mucous coat."

In reference to the peculiar lesions just detailed, Dr. Upham remarks that, in all the subjects examined, they were more or less developed. In three of the five cases detailed they were very prominent, but less marked in the other two. It is worthy of notice, he adds, that, in the latter, the preceding fever was milder and of shorter duration.

"It would seem that there exists an intimate connection between the conditions of the intestinal tract in primary typhus, and the changes which occur in the small intestines in the secondary disease—the latter correspond in situation with the uniform congestion and discoloration pointed out in the preceding autopsies of subjects that died in the acute stage of the fever. From these analogies, we are led to reflect upon the probability of a particular direction to these parts of the morbid influence from the first, and thereby induced to modify our treatment in the acute stage, so far as to avoid, from the commencement, all that could irritate these sensitive portions of the digestive tube, whether as food, drink, or medicines; believing that these specific morbid effects could better thus be avoided, than remedied when once induced." D. F. C.

ART. XXIV.—*A Treatise on the Causes, Constitutional Effects, and Treatment of Uterine Displacements.* By WILLIAM EDWARD COALE, M. D., Member of the Boston Society for Medical Improvement, etc., etc., etc. Boston, 1852: 8vo. pp. 52.

THIS short treatise on uterine displacements, which appeared originally in the *Boston Medical and Surgical Journal*, is well deserving of an attentive perusal on the part of every practitioner—especially of such as are liable to be

frequently consulted in cases of females labouring under ailments in which the uterus is supposed to be either directly or indirectly implicated.

The pamphlet before us is not offered as a comprehensive treatise on the displacements to which the womb is subject. The main object of Dr. Coale in its publication, is to direct attention to some practical views with regard to the causes of these affections, and to the means of treating them that experience has taught him to be most efficacious. To neither, however, does he claim the merit of originality—but, he thinks that “where certain of the causes which he lays down as important have been ascertained by others, they have not been properly appreciated; and, consequently, methods of treatment based upon them have been too much slighted, if not entirely overlooked.”

The opinions advanced by Dr. Coale, in respect to the causes of uterine displacements are, we believe, in their general outlines, perfectly correct. We had many years ago deduced from our own observations views similar to his. An attentive study of cases that have fallen under our care, in which the womb in young unmarried females had become more or less dislodged from its normal position, has convinced us that not only this dislodgment, but also nearly all the leading symptoms by which it is usually accompanied are dependent upon weak, relaxed, and excitable condition of the body, generally resulting from defective nutrition, a sluggishness in the performance of many of the more important of the functions of life, and a morbid susceptibility of the nervous system, caused by radical errors in the mode of living pursued by females generally, and too often by a violation of every precept of a sound hygiene in their physical training from infancy to womanhood. The success we have met with in the removal of uterine displacements and their attendant evils, by pursuing a course of treatment based upon the views referred to, has confirmed in our own mind their correctness.

The attention of physicians has been too exclusively directed to the abnormal positions of the uterus—and to these have been too generally referred all the suffering and ill-health under which the patients in whom they occur are found to labour. As a necessary consequence, the main object in the management of these cases has been to restore the uterus to its proper position, and to retain it there by a variety of mechanical means—useless, if not positively injurious, in many cases, and in none absolutely necessary, excepting “as an assistant during the first periods of the treatment to relieve speedily an urgent and embarrassing difficulty—the disposition of the uterus to descend.”

We fully concur in the remark of Dr. Coale, that many practitioners have been induced to look upon uterine displacements too much in a simply mechanical point of view, and to shape their remedies accordingly.

“The consequence has been, that local causes have been too much insisted upon as accounting for the origin of these affections, and pessaries and abdominal supporters have been too much relied upon in the treatment of them, to the disregard of remedies intended to restore the health generally, and to give tone to the system at large.”

D. F. C.

ART. XXV.—*Manual of Physiology.* By WILLIAM SENHOUSE KIRKES, M.D., Licentiate of the Royal College of Physicians, Registrar and Demonstrator of Morbid Anatomy, at St. Bartholomew's Hospital. Assisted by JAMES PAGET, F.R.S., Lecturer on General Anatomy and Physiology at St. Bartholomew's Hospital. Second American from the second London edition, with one hundred and sixty-five illustrations. Philadelphia, Blanchard & Lea, 1853: 12mo. pp. 568.

In the present edition, the *Manual of Physiology* has been brought up to the actual condition of the science, and fully sustains the reputation which it has already so deservedly attained. We consider the work of MM. Kirkes and Paget to constitute one of the very best handbooks of Physiology we possess—presenting just such an outline of the science, comprising an account of its leading facts and generally admitted principles, as the student requires during his attendance upon a course of lectures, or for reference whilst preparing for examination. To those in whose professional education physiology does not

constitute, as in that of the physician, an essential item, but who feel desirous to acquire a general knowledge of the vital conditions, phenomena, and laws of the human body in a state of health, the present manual, also, recommends itself by its faithfulness, clearness, and precision.

The text is fully and ably illustrated by a series of very superior wood engravings, by which a comprehension of some of the more intricate of the subjects treated of is greatly facilitated.

D. F. C.

ART. XXVI.—*Biographical Sketch of J. Kearny Rodgers, M. D.*, Fellow of the College of Physicians and Surgeons of the University of the State of New York, and one of its Trustees; Surgeon to the New York Hospital, and New York Eye Infirmary; Consulting Surgeon to the New York Lying-In Asylum, of the Institution for the Blind, and of the Emigrants' Hospital; formerly President of the New York County Medical Society, and Vice-President of the Academy of Medicine; and Honorary Member of the New York Pathological Society. By EDWARD DELAFIELD, M. D. Read before the New York Academy of Medicine, and published under its auspices. New York: 1852.

THIS is an exceedingly well-written and faithful memoir of one of the most distinguished surgeons of our country, contributed by one who was a fellow-pupil, and through life a steadfast friend, and who has himself reached to the highest distinction in another branch of our profession.

We regret that we cannot insert some extracts which we had marked for the purpose, but we have only space for the following, which we select not only as in the highest degree honourable to Dr. Rodgers, but as an example to be held up for all to follow:—

“A striking feature in the professional character of Dr. Rodgers was strict integrity, in the fullest meaning of the word. His patients were always sure of obtaining his opinion of their cases with perfect frankness. He made no flattering promises in doubtful cases, and especially avoided surgical operations whose necessity and advantage were not fully apparent. He adopted literally and faithfully the maxim of his great master in surgery, Sir Astley Cooper—‘Never to perform an operation upon another, which, under like circumstances, he would not have had performed upon himself.’ Nor did he, like too many others who rank high as surgical operators, ever operate upon a case which he considered not a proper subject for the knife, merely because the patient wished it. If there be a reprehensible practice among us, it is this; and sad it is to hear men of undoubted skill and general fair fame justifying themselves, when detailing operations in cases where no probability of success existed, by this very plea. It certainly should be the surgeon’s own judgment which should decide such a case, not the patient’s wishes; for, much as a person may desire an operation, he trusts at last that the surgeon will not perform it if he do not have good hope thereby to save his patient’s health or life. Dr. Rodgers was decided in his opinions and practice in this matter, and never yielded to the temptation his great operative skill put in his way, of operating for his own sake, not his patient’s. He thought, with Hunter, that ‘when the surgeon takes up his knife he lays down his science,’ and left no appropriate surgical means untried before he resorted to operation.

“There was one disease, especially, in which he took strong ground in opposition to the every-day practice of surgeons—Cancer of the female breast. We all know how rarely operation is successful in this disease. He early doubted of its propriety in any case, and one of the first subjects which deeply engaged his attention was the propriety of the operation in any case of this disease. He lost no opportunity of conversing with every surgeon he met with, on his experience in such cases, and corresponded with many of the first operators in Europe and our own country on the same subject. He very soon adopted the opinion firmly, that the operation, if performed at all, should be the exception, not the rule; and almost reached the result at last, that it was never justifiable in true Scirrhus.”

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Structure of the Sensitive Papillæ of the Skin.*—Our knowledge of the way in which the nerves of sensation terminate in their respective organs is as yet very inexact, and the structure of these organs themselves has been in many respects but imperfectly made out. All acknowledge in the ear, and in the eye, a curious and complicated apparatus suited to receive the impressions of the special object of each of these senses; but in respect of the other three senses, such a relation is less perfectly understood. The researches of Todd and Bowman on the tongue have, however, done much to advance our knowledge of the organ of taste; and RUDOLPH WAGNER (in *Müller's Archives*, 1852, p. 493) has given interesting drawings and descriptions of certain peculiar bodies, called by him *corpuscula tactûs*, in the tactile papillæ of the skin.

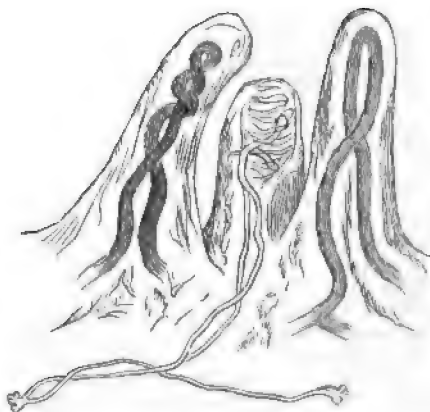
Fig. 4 represents one of these papillæ of the usual well-known form, from the anterior surface of the end of the little finger. It is represented as denuded of its epidermis, the surface of the papilla presenting slight inequalities where the lower layer of epidermic cells had rested, and its substance containing some nucleated fibres. Two nervous tubules are seen rising into it, and terminating in the oval "*Tacthörperchen*," which forms the apex of the papilla, and is imbedded in its substance.

Fig. 4.



Papilla and Corpusculum Tactûs.—After Wagner. 400 diameters.

Fig. 5.



Papillæ and Corpuscula Tactûs.—After Wagner. 400 diameters.

This body has not been isolated, and having been studied only in sections such as those we have copied from Wagner's plate, its intimate structure is not exactly known. Kölliker maintains that it is composed of a central axis, wrapped round with elastic fibres, and distinct dark striæ are certainly observed to cross it in various directions, while small corpuscles are not unfrequently among them. Wagner is quite satisfied that the nervous tubules actually enter this *corpusculum tactûs*, though the exact mode in which they terminate is undiscovered; he has not been able to find any looping of the nerves, though there are other papillæ in which looping vessels are easily seen (Fig. 5). It is very remarkable that capillaries and nerves do not appear to coexist in the same papilla, so that those which contain a looping vessel are destitute of a *corpusculum tactûs*, and *vice versa*. This appears to us so extraordinary as to require confirmation; but, if Wagner's account of the structure of the organ of touch prove to be accurate, an interesting addition will have been made to the physiology of the senses, even although the mode in which these rounded bodies subserve the transmission of accurate tactile impressions to the nerves may not be better understood than the precise function of the cochlear or vestibular nervous apparatus in the ear. Wagner supposes that his *corpuscula tactûs* on the surface, and the Pacinian bodies more deeply seated, absorb all the terminal filaments of the sensitive nerves, and thinks it possible, that they may be connected severally with different modes of sensation; one with the appreciation of heat, for instance, and the other with touch, properly so called. At all events, that the peripheral extremities of the sensitive nerves should terminate in distinct organs, and not be merely lost in tissue, is a result which ought not to prove surprising.—*Association Journal*, Jan. 1853.

2. *On the Glands of the Mucous Membrane of the Human Stomach*.—From the careful examination of the stomach of several suicides, Dr. A. ECKER gives the following statement concerning the gastric glands: In almost the whole of the stomach are merely simple cylindrical glands $\frac{1}{2}$ to $\frac{3}{4}$ ''' long and $\frac{1}{10}$ ''' thick, going in a straight line through the mucous membrane, ending in a club-like swelling, very rarely exhibiting a division of the blind end. They contain round and angular cells, of a diameter of 0.017 to 0.020^{mm} with a nucleus composed of larger granules; towards the open end are seen more developed cells, towards the blind one, more nuclei and granular matter. At the *cardiac end*, besides these simple glands, other glandular follicles are situated, the blind end of which is divided and pouched; their contents are the same as just described, except that more fat-granules are seen towards the blind end. Near the *pyloric orifice* he constantly found, besides the simple, also *acinous glands*, deciding by this against Ererichs (Wagner's *Handwörterbuch*, iii. 748) and Kölliker (*Mikroskop.-Anatom.* vol. ii. pp. 139 and 149), in favour of Bischoff (*Müller's Archives*, 1838, p. 515). We observe, therefore, no abrupt change in the structure of adjacent parts of the intestinal tube, but only a gradual one, single acinous glands being situated in the mucous membrane of the œsophagus, and a larger quantity of them in the duodenum.—*British and Foreign Medico-Chirurgical Review*, January, 1853, from *Henle's and Pfeuffer's Zeitschrift, f. ration. Medicin.* 1852, vol. ii.

3. *Pacchionian Bodies*.—Self-evident though the axiom be, that makes the study of morbid anatomy dependent upon a correct knowledge of healthy parts, the instances are not infrequent in which pathological errors have been committed from mistaking a natural for an abnormal structure. Perhaps the so-called glands of Pacchioni have given rise to one of the most glaring instances of such error: first described by the above-named anatomist, in 1705, their structure, and their relations to disease of the membranes of the brain, have usually been much misunderstood; and physiological conditions having been erroneously supposed to be morbid, the natural consequence is, that what is really the result of disease has been overlooked. Professor LUSCHKA (*Müller's Archives*, 1852, p. 101) has recently studied the Pacchionian bodies, and the following is a summary of his results:—

The bodies in question, which are found closely connected both with the cerebral and the parietal arachnoid, along the course of the longitudinal sinus,

held by Soemmerring to be granules of fat, and by Rokitansky and Hyrtl to be the products of inflammatory effusion, are in reality normal, as might, *à priori*, be supposed from their being found in all persons of all ages, although they may readily be confounded with actual inflammatory exudation under or upon the free surface of the membrane.

The Pacchionian bodies are found *only* near the mesial line, and are unconnected with disease of the subjacent pia mater, which is not found to adhere more closely in their vicinity, than elsewhere, to the arachnoid, from which latter membrane the granules in question cannot be torn, and of which they are indeed regularly-formed offsets.

Pacchionian Bodies of the Cerebral Surface.—On tearing off portions of the arachnoid from the mesial edge of the cerebral hemispheres, it separates easily from the pia mater, and carries with it the Pacchionian bodies, which appear under the lens as shaggy projections of its proper substance, of various form and size, as well as of very different number in different heads. They are usually smaller and less distinct the younger the individual, their size varying from that of a poppy-seed to that of a millet-seed. Their colour is gray or whitish, and their structure usually firm and fibrous; they are covered with a scanty epithelium, and contain no vessels. The curious cactus-like forms of these bodies are seen in Figs. 1, 2.



Fig. 1.



Fig. 2.

Pacchionian bodies; after Luschka. 30 diameters.

Pacchionian Bodies of the Parietal Surface.—The fibrous web of the dura mater, where it forms the longitudinal sinus, presents many irregular interstices over which the arachnoid is stretched, and into which it partly sinks. From these points, where the serous membrane is unsupported by the fibrous tissue, spring the Pacchionian bodies, presenting, as on the surface of the hemispheres, various shapes; pressing backwards through the dividing fibres of the dura mater upon the skull, and even into the canal of the sinus, and projecting forwards upon the surface of the brain, so as to come in contact with the Pacchionian bodies already described as springing from the cerebral arachnoid.

In the young, they are usually less prominent, and of simple shape; but in some cases, especially in subjects more advanced in life, they assume very complex, and often regularly beautiful, forms (Fig. 3), and in this case they interlace so closely with those springing from the cerebral arachnoid, that, on removing the dura mater, both folds of serous membrane come away together, an occurrence often erroneously attributed to pathological adhesions.

Morbid Conditions of the Pacchionian Bodies.—The most remarkable of these is hypertrophy, observed chiefly in old persons; in consequence of which, masses

Fig. 3.



Pacchionian bodies.—After Luschka. 30 diameters.

of considerable size are formed, and, pressing into the longitudinal sinuses, sometimes seriously impede the current of the blood. At other times small tumours are produced, which are often mistaken for fungus of the dura mater, and which we ourselves have once or twice noticed as the apparent cause of sudden death by their pressure on the surface of the brain, a pressure the force of which was manifested by their having formed deep pits in the skull above, all but penetrating its substance.

The Use of the Pacchionian Bodies is unknown. It can only be guessed that they may in some way protect or strengthen the veins, as these enter the longitudinal sinus, in man, the only animal in whose head the bodies in question have been detected.—*Association Journal*, Jan. 1853.

4. *On the Reproduction of Nervous Substance, and on the Structure and Functions of the Spinal Ganglia*.—Dr. A. WALLER, after having made many experiments on different animals, principally warm-blooded ones, of an early age, and frogs, considers himself entitled to the conclusion: "That the old fibres of a divided nerve never gain anew their original structure and function, and that the reproduction of nervous substance does not take place merely in the cicatrix itself, but also downwards into the terminating ramifications. The old fibres gradually waste, and after a month or later, new fibres are formed, which are pale and transparent, possess no double contour, present a very unequal diameter, being on the one place very thin, on the other varicose, like the fibres of the spinal marrow. In the peripheral part of the glosso-pharyngeal nerve of a frog, three months after the section, their size was only about one-sixth to one-third of the original fibres; they resembled, therefore, much more the ramifications of the nerve in very young frogs. In the central part of the cut nerve the fibres remain unaltered. Concentrated acetic acid dissolves the membrane of the newly-formed fibres, leaving fusiform nuclei; the membranes of the original fibres are completely dissolved, no nuclei being left. The reproduction of fibres, and the return of function, proceed in the same proportion. Of great importance are Dr. Waller's experiments for the understanding of the structure and function of the ganglia. While, as he has previously shown, all motor nerves, separated from their cerebro-spinal centre, become entirely changed in their microscopic appearance, the peripheral part of the sensitive spinal nerves, the root of which is cut through between the spinal cord and the spinal ganglion, remains unaltered as long as the connection with the ganglion is maintained. Ten or twelve days after having divided one or both of the roots of the second cervical nerve, he was enabled to make the following observations: 1. That part of the sensitive nerve which is situated between the place of division and the ganglion, is disorganized in the same manner as any dissected nerve in its peripheral end. 2. Tracing the disorganized fibres into the interior of the ganglion, they are seen mixed with normal fibres; the disorganized ones appear to pass into ganglionic globules, which are likewise altered, seeming to be deprived of their contents, and to consist merely of a thin, indistinct membrane. 3. The normal fibres appear to end by very thin filaments passing into normal ganglionic globules. 4. All the fibres originating within the ganglion are in their normal state. 5. The motor fibres are completely disorganized in the whole of the peripheral part of the nerve (no motion is produced by galvanism, or any other stimulus). 6. After having divided only the posterior root, all the fibres below or on the other side of the ganglion were normal. 7. After having divided the nerve below the ganglion, or after having cut out the ganglion, all the fibres in the peripheral part were disorganized. It is evident from this, that the spinal ganglion acts as a nervous centre for the sensitive fibres, but not for the motor ones. Dr. W. promises to give soon more detailed observations, as well on the same subject as on the function of the nervus vagus and sympatheticus.—*British and Foreign Medico-Chirurgical Review*, January, 1853, from *Müller's Archives*, 1852, No. 4.

5. *On the Muscles which open the Eustachian Tube*.—JOSEPH TOYNBEE, Esq., F. R. S., read an interesting paper on this subject before the Royal Society on the 17th February last. He commenced by alluding to the opinion generally held

by anatomists, viz., That the guttural orifice of the Eustachian tube is always open, and that the air in the tympanum is constantly continuous with that in the cavity of the fauces. An examination of the guttural orifice of the tube in man and other animals has led the author to conclude that, except during muscular action, this orifice is always closed, and that the tympanum forms a cavity distinct and isolated from the outer air. The muscles which open the Eustachian tube in man are the tensor and levator palati, and it is by their action, during the process of deglutition, that the tubes are ordinarily opened. That the act of swallowing is the means whereby the Eustachian tubes are opened, is shown by some experiments, of which the following may be cited: If the mouth and nose be closed during the act of swallowing the saliva, a sensation of fullness or distension arises from the air, which is slightly compressed in the fauces, passing into and distending the tympanic cavities. Upon removing the hand from the nose, it will be observed that this feeling of pressure in the ears does not disappear, but it remains until the act of deglutition is again performed, while the nose is not closed. In this experiment, the Eustachian tubes were opened during each act of deglutition; during the first act, while they were open, air was forced into the cavity of the tympanum by the contraction of the muscles of the fauces and pharynx, and the guttural orifices of the tubes remained closed until the second act of swallowing, which opened the tubes, and allowed the air to escape. That the act of deglutition opens the Eustachian tubes was inferred also from the custom usually adopted of swallowing while the descent in a diving-bell is performed; by this act the condensed air is allowed to enter the tympanum, and the sensation of pain and pressure in the ears is removed or entirely avoided. The author gives an account of the Eustachian tube and its muscles in mammalia, birds, and reptiles. In some mammalia the muscles opening the tubes appertain as in man to the palate; in others, this function is performed by the superior constrictor muscles of the pharynx. In birds, it is shown that there is a single membranous tube into which the two osseous tubes open; this membranous tube is situated between, and is intimately adherent to, the inner surface of each pterygoid muscle, and by these muscles the tube is opened. The conclusion to which the author arrives respecting the influence of the closed Eustachian tubes, is, that the function of hearing is best carried on while the tympanum is a closed cavity, and that the analogy usually cited as existing between the ordinary musical instrument the drum and the tympanum, to the effect that in each it is requisite for the air within to communicate freely with the outer air, is not correct. On the contrary, the author shows that no displacement of the air is requisite for the propagation of sonorous undulations, and that, were the Eustachian tubes constantly open, these undulations would extend into the cavity of the fauces, there to be absorbed by the thick and soft mucous membrane, instead of being confined to the tympanic cavity, the walls of which are so peculiarly well adapted to the production of resonance, in order that they may be concentrated upon the labyrinth.

In corroboration of the above views, the author states, that in cases of deafness, dependent simply upon an aperture in the membrana tympani, whereby the sonorous undulations are permitted to escape into the external meatus, the power of hearing has been greatly improved by the use of an artificial membrana tympani, made of very thin vulcanized India-rubber, or gutta-percha, which is so applied as again to render the tympanum a closed cavity.—*Med. Times and Gazette*, Feb. 26, 1853.

6. *Specific Gravity of the Brain*.—Dr. W. H. O. SANKEY has published, in the *British and Foreign Medico-Chirurgical Review* (January, 1853), the analysis of 77 observations made upon the specific gravity of the brain. These render probable the following general conclusions, viz.:—

That the mean specific gravity of the gray matter, in either sex, is 1.034; that the density of the gray matter is somewhat below the mean in the earlier and later periods of life; that the highest density is met with between the ages of 15 and 30 years in males, and between 20 and 30 years in females; that the density of the gray matter is, in a slight degree, lower in those persons

who have died after a long illness, and greater, to a slight extent, in those subjects examined before twelve hours after death than in those examined at later periods.

That the density of the gray matter may be found in a subject after death to be .006 below the mean, without any cerebral symptoms having been present during life; but when the specific gravity exceeds the mean by .006, then one of the following conditions has existed during life, viz.: either acute cerebral disease, attended with head symptoms of the gravest character, or chronic disease (in all the cases analyzed of chronic disease of the kidneys), attended either with no cerebral symptoms, or only with slight delirium.

That the mean specific gravity of the white matter after death is 1.041; that its density varies less than that of the gray matter in the sexes, or in the different periods of life; that it is much less affected by *post-mortem* changes or length of the last illness.

That in those cases in which the gravest cerebral symptoms were present during life, the density of the white matter after death may present two opposite conditions—either it may exceed the average, or it may be much below the mean.

That high specific gravity of both gray and white matter is found in conjunction with those morbid conditions of the brain connected with hyperæmia, and that a low specific gravity exists in conjunction with the opposite condition of the brain.

That no relation appears to exist between the specific gravity and the actual weight of the brain.

7. *On the Existence of Semen in Aged Men.* By M. DUPLAY.—It is a long-established notion that the secretion of semen is entirely arrested in old men, and in this way their loss of procreating power is accounted for. This idea was refuted by the researches of Fischer, who found seminal fluid in abundance in the vesiculæ and testes of a man aged 94.

After the discovery of the spermatozoa, it was then concluded that the semen of old men did not contain them, and thus accounted for their impotency. Some isolated and imperfectly conducted examinations of the fluid, apparently warranted this idea. Such an opinion, however, is not compatible with the well-authenticated cases, and too numerous to be false, of the procreating power of old men. Wishing to arrive at more positive and authentic data, M. Duplay examined the fluid contained in the seminal apparatus in 51 aged subjects. Apart from the consistence, colour, and other less important properties, in 37 cases spermatozoa were found, which, in 27 cases, were perfectly formed, the head large, tail long, and curved; in a word, not differing from that of the adult, and in some instances as abundant.

Amongst these 37 examined, 8 were sixty years old; 20, seventy; and 9, eighty. Also in the 7, where the spermatozoa were as numerous as in the adult, the minimum age was seventy-three, and the maximum eighty-two. In these subjects, 21 died of acute and 16 of chronic affections, giving rise to that wasted condition which, according to some observers, causes their disappearance in the adult.

Nevertheless, if this secretion possesses, occasionally, at this age, the same power and regularity in its effects as at an earlier period of life, it is not always so; for M. Duplay could not find any spermatozoa in 14 of the cases examined; also, in some, there was a remarkable modification in their structure, abundance, or seat. The tail or head was occasionally deformed, some having a very short tail, others having virtually no head. Small crystalline masses were also seen, but their nature could not be determined.

As to the quantity, the writer observed that, in 14 cases, though the spermatozoa were fully formed, they were very few in number; a few only being visible, isolated, in the midst of a liquid, containing little granules and the debris of epithelial scales.

As to their seat, the animalcules were found in 26 along the whole extent of the spermatic apparatus; in 3, the semen in the vas deferens alone contained them; that of the vesiculæ contained none; in 1, they were found in the vesti-

culæ, and not in the vas deferens; and in 7, in the vesicula of one side, and not in the vasa deferentia.

These remarks are not only interesting, as being scientifically curious, but deduce some corollaries of use in a hygienic point of view. Thus, if old men become less apt for reproduction, it is not exclusively in the composition of their semen that the cause is to be sought for, but in some modification of the other acts necessary to this function. It may also be added, that if the semen continues to be secreted in the aged, it must have its use; but since, physiologically speaking, nothing then stimulates its evacuation, for the purpose of reproduction, may it not be concluded that it is destined to be reabsorbed, and thus, by its stimulating influence tend, in a certain degree, to keep up the vital force. This conclusion is supported by the researches of M. Gosselin, as to the existence of the same secretion in obliteration of the spermatic canals. It is proper to show the dangers which artificial ejaculations give rise to at this age, notwithstanding the abeyance and providential passiveness of those organs, to which the name of excitors may be given.—*Dublin Medical Press*, February 16, 1853, from *Gazette Médicale de Paris*.

MATERIA MEDICA AND PHARMACY.

8. *Action of Liquor Potassæ on the Urine in Health.*—Prof. E. H. PARKES, M. D., in an interesting paper published in the *British and Foreign Medico-Chirurgical Review* (January, 1853), records some observations instituted to determine the effect of liquor potassæ on the urine of a healthy individual preliminary to a similar inquiry into its action on the urine of diseased persons. The following is his recapitulation of the results which he has obtained:—

If liquor potassæ be taken soon after meals, its action is that of an antacid. It combines with hydrochloric or with lactic acid, and then, doubtless, passes into the circulation. What appreciable effect it now produces is not indicated in the tables above given, but it does not increase either the water, solids, or sulphuric acid of the urine. If the liquor potassæ be taken into an empty stomach, it passes unneutralized into the circulation, and probably through the veins; in so doing, it must produce an effect on the walls of the capillaries and small veins, but the extent of this cannot be known. As much as ʒij have been taken with only 4 ozs. of water, without causing epigastric pain or uneasiness (although it produced considerable temporary scalding of the mouth and throat), and without apparently producing any local effects in the stomach. In, usually, from thirty to ninety minutes after its entrance into the circulation,¹ an increased flow of slightly acid urine occurs, which contains the whole of the potash, organic matter differing considerably from that of ordinary urine, and a relatively large proportion of sulphuric acid; the phosphoric acid and the chlorine are less changed. Perhaps an organic acid (not uric, and probably not hippuric) is also present. The explanation of these facts is, that an albuminous compound, either in the blood itself or in the textures, has become oxidized; its sulphur, under the form of sulphuric acid, has united with potash, and, with possibly the changed protein-compound, is poured out from the kidneys. This oxidizing effect of the liquor potassæ is no doubt assisted by exercise, and by copious draughts of water; but in the above experiments, exercise and fluid were abstained from, in order not to complicate the results. The amount of albumen or fibrine destroyed by one drachm of liquor potassæ cannot

¹ This does not sufficiently appear from the facts in the text. I subjoin some particulars of another experiment, made when the system was not quite in a state of health. At a quarter past 4, liq. potassæ ʒj, water ʒiv, was taken.

At a quarter to 5, ʒij, ʒvj were passed . . . = ʒv, ʒij per hour.

At a quarter past 5, ʒiv, ʒvij were passed . . . = ʒix, ʒvj per hour.

At a quarter to 6, ʒj, ʒij were passed . . . = ʒij, ʒiv per hour.

be considerable, but if the potash were continued in large quantities, oxidation could probably be pushed to any amount. The nitrate and acetate of potash did not in a *healthy system* have the same effects.

After the increased flow of urine, the quantity passed per hour falls slightly below the standard. It appears to resume its ordinary composition, but its exact condition at this period has not been determined. Some observations on urine in disease would lead me to infer that the uric acid will be found to be increased.

Such were the effects of liquor potassæ on the urine. The effect produced on other excretions was not obvious. The skin and the intestines appeared quite unaffected, and as all the potash was found in the urine, the reason of this is easily understood. In most of the experiments there were no subjective symptoms of any kind. On two occasions, there was rather sharp frontal headache, languor, depression, slight lumbar pain, and aching of the legs, after the large flow of urine. On the night of the 15th, when the flow of the urine, which was proceeding at the rate of 3iss per hour, was augmented in two and a half hours by ʒiiv, and no fluid was supplied to the system, the pulse became perceptibly small (almost thready) and slow; it remained equal and regular—there was no thirst, no shivering, and no nausea; the skin was dry and warm. In six hours the pulse had quite regained its force and frequency, and the other symptoms had disappeared without any fluid having been taken.

After the experiments were concluded, the general health did not appear impaired; it was, if anything, better than usual.

The effect of liquor potassæ on the diseased system is a much more difficult problem. The chemical conditions are not the same, and the effects of the potash are necessarily influenced by them. I will not now enter into this subject, but observe that it is necessary, when its oxidizing effects are desired, to give the potash eight or ten hours after food, to drink moderate quantities of water, and, if possible, to use exercise. The potash should be given pure, or with large doses of iodide of potassium, but unmixed with sugar. I may so far anticipate what will be hereafter said on this point, by stating that, administered in this way, it exerts a powerful effect on the exudations of inflammations, but appears less useful in the early stages, when an antagonistic force seems to be in action.

It remains to be seen whether the varying excretion of sulphuric acid, which is unaccounted for by diet and exercise, is occasioned by greater or less alkalinity of the blood producing variations in the amount of oxidation of the albuminous compounds.

9. *Action of Anthelmintics.*—Dr. KUCHENMEISTER, of Zittau, has examined the various vermifuges, by immersing the living intestinal worms of fowls, cats, and dogs, in albumen, at a temperature exceeding 77° Fahr., and adding the anthelmintics in the form of infusion or of powder. In some cases, a mixture of warm milk and water was substituted for the albumen. The experiments were not continued for more than from forty to forty-eight hours, if the worm had not been killed before the expiration of that time. Dr. Kuchenmeister made use of electricity as the most delicate reagent for proving the occurrence of the death of the worms. In the first place, electricity cannot be considered as a vermifuge. The author subjected a female *heterakis vesicularis*, taken from a partridge that had been killed, to the action of a rotatory apparatus, which was kept up with longer or shorter intervals during an entire day. The animal was not destroyed by the experiment. He next tried the remedies employed for the removal of tæniæ, and first tested kousso in the following manner: A living *tænia crassicolis*, procured from a cat, was placed at four o'clock in a mixture of albumen and dolichos pruriens. The worm appeared to be perfectly well in this mixture, and at two o'clock on the following afternoon exhibited the most vigorous movements. The tænia was now transferred to a vessel containing a mixture of infusion of kousso and some of the infused as well as some of the fresh powder with albumen. The temperature of the mixture was 30° R. (99.5° F.) On its introduction, the worm quickly extended itself; after some time it was found to be dead, its colour having changed to a dirty reddish-

yellow. Two *tænia serrata* were placed at about half-past one in the afternoon in a mixture of albumen and koussou; at two o'clock they were dying, and at three completely dead. Two *tænia serrata* from the same dog were brought in contact with koussou and milk at half-past one in the afternoon, and at two o'clock were dead. Two *tænia serrata* were placed at half-past one in the afternoon in albumen, mixed with decoction of pomegranate root and with some of the powdered root; they died in three hours. Two others were placed in milk mixed with the decoction only; they died in three and a half hours. A *tænia crassicolis* was put into a mixture of albumen with ethereal extract of male fern; it died gradually in three hours and three-quarters. A number of *tænia cucumerina* were placed in a mixture of albumen and oil of turpentine; they were dead in an hour and a quarter.

A number of the same were put into a mixture of albumen and castor-oil; they appeared lively at first, but were dead in seven hours. Similar worms were put into a salad, composed of pieces of unwatered herring, boiled potatoes, large pieces of onion and garlic, albumen, vinegar, and a large quantity of oil. They died in eight hours. Lastly, the author tested the vermifuge powers of the brown oxide of copper; fifteen grains were administered in the course of four days to a strong cat. When the body was opened, the entire intestinal canal was found to be full of fluid, yellow, flaky feces; the intestine was softened, and denuded of epithelium, especially at the termination of the ileum, where the adjoining Peyer's glands were much swollen, particularly in two situations, one of which was an inch and a half long by one-third of an inch broad; the other was nearly circular, and its diameter one-third of an inch. The cat had been purged. The *tænia* and *ascarides* it contained were lively. It would hence appear that this substance is both inefficacious as a vermifuge and dangerous to the system. The following table contains the results of the above experiments:—

In milk boiled with koussou, <i>tænia</i> died in half an hour.	
In a mixture of oil of turpentine and albumen, in . . .	1 to 1½ hour.
In decoction of koussou with albumen . . .	1½ " 3 hours.
In decoction of pomegranate root with milk . . .	3 " 3½ "
In decoction of pomegranate root with albumen . . .	3 " "
In ethereal extract of male fern with albumen . . .	3½ " 4 "
In castor-oil with albumen . . .	8 " "
In salmagundi with garlic and onions . . .	8 " "

Koussou would therefore seem to be the most efficacious remedy against *tænia*. When pomegranate bark and male fern root fail, their failure may be owing to the habit of administering a laxative in from four to six hours after the exhibition of the vermifuge, by which the latter may be carried beyond the worm. With regard to pomegranate root, it must be observed, that in large doses it occasions diarrhoea. The same remark applies to castor-oil. The author also alludes to cold water, strawberries, *dolichos pruriens*, and filings of tin. When *tænia* are placed in water containing ice, they are instantly benumbed, and if allowed to remain in it, they will always be found at the end of ten hours to be quite dead. Strawberries may be useful as a mild remedy in cases of tape-worm; if large quantities of them be taken on an empty stomach, entire portions of the worm will often be passed. *Dolichos pruriens*, with which the author tried many experiments, appears to possess no power of destroying worms. The author has also minutely studied the medicines recommended for the removal of round worms. In albumen, these worms behave as the *tænia*; in water, at about 77° F., they live for some days, but swell, stiffen, become longer, thicker, and more sluggish; they lose their power of suction, and their motions become slow and only partial; they resemble leeches which have gorged themselves. In general, however, the males and young neutrals resist the effects of water longer than the mature, impregnated, egg-bearing females, which become quite rigid and inflexible, and swell considerably. Milk and whey affect the worms like water. The following are the medicines, the effects of which were tested:—

1. Camphor. An *ascaris* lived from eighteen to twenty hours in albumen

into which some camphor had been introduced. 2. A mixture of oil of turpentine and albumen killed some ascarides which were placed in it in from two and a half to six hours. 3. Ascarides lived forty hours in albumen and worm-seed, whether the latter was employed in the form of powder or infusion. 4. Some ascarides were placed in albumen mixed with santonine; they did not die in it, nor did they die in a watery infusion of santonine. When santonine was dissolved in oil, especially in castor-oil, and mixed with albumen and ascarides, the latter died in ten minutes. An injection of santonine and castor-oil was thrown up the rectum of a cat, and produced numerous motions containing dead worms; and on killing the cat, the entire of the lower portion of the intestinal canal was ascertained to be free from worms, while four were found near the stomach quite rigid and extended, and retaining but little life. A *tania crassicolis*, however, was found in the intestines, and appeared to be quite uninjured and very lively. 5. A mixture of albumen and aniseed, with a strong infusion of the latter, killed the worms in about twenty-four hours. 6. Parsley, mixed with albumen, killed ascarides very slowly. 7. Flour of mustard and albumen destroyed them in about four hours. 8. In rue, the worms lived upwards of twenty-four hours. 9. The same was the case with millefoil. In contact with tansy, valerian, and chamomile, great numbers of them lived for twenty-four hours. With onions and garlic they perished in from ten to fifteen hours. A decoction of cloves, with or without albumen, killed them in twelve hours. In an infusion of ginger, with or without albumen, they lived about twenty-four hours. Petroleum, mixed with albumen, killed them in less than six hours, as did also oil of cajeput and albumen.

A series of vermifuges, taken from the class of balsamics, was tried in like manner, namely, assaetida, ammoniacum, balsam of Peru, extract of juniper, and Venice turpentine. In all these the worms lived more than twenty-four hours. Of the class of empyreumatics (brenzlichen stoffe), the following were tried: Oleum chaberti [a mixture of four parts of oil of turpentine, and one of the animal oil of Dippel], oil of amber, castor-oil, tar-water, creosote, wood-vinegar, and wood-soot. In these, for the most part, the worms lived from twenty-four to forty-eight hours, except the wood-vinegar, in which they lived rather more than twelve; and creosote, in which they died within two hours. Of bitters, the author tried aloes, gamboge, ox-gall, wormwood, myrrh, gentian, quassia, hops, bitter orange, and acorus calamus; in all these the ascarides lived from twenty-four to forty hours. Of astringents, pure tannic acid, pomegranate root, kousso, extract of walnuts, cinchona bark and quina, elm bark, willow bark, the flowers and stalks of meadow-sweet, oak bark, dragon's-blood, catechu, and kino. In these, the worms died in from twenty-four to thirty hours, with but two exceptions, namely, tincture of galls and pomegranate root, both of which killed them in the space of eleven hours. Of saline preparations, sulphate of soda, chloride of sodium, and the roe of the herring, were tried. In the first, the worms died in from fifteen to eighteen hours; in the second, in from two to six; and in the roe of the herring, in four hours. The following metallic poisons were experimented on: Arsenic, calomel, corrosive sublimate, and the salts of tin, of lead, and of copper. Corrosive sublimate alone destroyed the worms in so short a time as two hours; all the other metallic salts required a much longer period. From these experiments it would appear that santonine, mixed with oil, is a most powerful vermifuge, then chloride of sodium, the roe of the herring, garlic, onions, &c. The author advises that santonine should be given as a vermifuge; mixed with oil, in the proportion of from two to five grains to an ounce of castor-oil. This solution should be given in the doses of a teaspoonful until the effect is produced. As auxiliary treatment, chloride of sodium, herring-brine, mustard, onions, and garlic, may be employed.—*Dublin Quarterly Journal*, February, 1853, from *Froriep's Tagsberichte über die Fortschritte der Naturund Heilkunde*.

10. *Tincture of Mastic as a Hæmostatic*.—It is stated in a recent number of *Schmidt's Jahrbucher*, that Dr. FRANKL has found the tincture of mastic an excellent hæmostatic. He employs it in epistaxis, and in troublesome bleeding from leech-bites. It is applied to the points whence the blood issues, by means

of a camel's-hair pencil. Terzer, a dentist of Vienna, is also reported to have used it successfully in hemorrhage following the extraction of teeth.—*Association Medical Journal*, Jan. 14, 1853.

11. *Hyposulphite of Soda and Silver as an occasional Substitute for Nitrate of Silver*.—Dr. J. DELIOUX, of Cherbourg, brings the hyposulphite of soda and silver under notice, as a therapeutic agent, in the *Bulletin Générale de Thérapeutique* for October 15 and November 15, 1852. He prepares it by pouring a solution of hyposulphite of soda on oxide of silver, recently precipitated by potassa, until it is completely dissolved. On evaporation, minute crystals of hyposulphite of soda and silver are left. The salt appears as a grayish-white crystalline powder, of sweetish taste, leaving a slightly styptic flavour; it is very soluble in water, but insoluble in alcohol. It becomes black on long exposure to light, but preserves its colour indefinitely when kept in bottles of coloured glass, or covered with paper. The solution becomes black when exposed to diffused light, but much more slowly than that of the nitrate of silver. When pure, it does not discolour the epidermis or linen. Its power of coagulating albumen, and hence its astringency, is small compared with that of the nitrate, and its local action is less irritating.

From various experiments, Dr. Delieux concludes: First, that for external use, the hyposulphite of soda and silver may be employed in larger doses than the nitrate of silver; and that in these doses it is much less irritant, and incapable of producing a true eschar: Secondly, that for internal use, if it is sufficiently diluted, there is no risk of injuring the mucous membrane of the stomach. Moreover, as its solution does not coagulate albumen, nor form a precipitate of chloride of silver, it will be readily absorbed by the veins of the stomach.

Dr. Delieux has had an opportunity of administering the salt in only one case of epilepsy. Here it was unsuccessful as far as the epilepsy was concerned; but it produced no blackening of the skin, or any physiological disturbance beyond excessive hunger. But the author very justly points out that no inference can be drawn from a single case. He gradually increased the daily dose from 5 to 60 centigrammes ($\frac{1}{4}$ of a grain to 9 grains).

As an external application, Dr. Delieux uses the hyposulphite as a substitute for nitrate of silver, in cases where a local alternative is required which shall produce less irritation, and act chemically on the tissues less than the latter salt. It should be tried in obstinate ulcers, as an injection into purulent collections and into sinuses, in chronic fluxes of the external ear and of the nasal fossæ, and as a collyrium in diseases of the eye. Among the latter, Dr. Delieux can only cite from experience cases of acute conjunctivitis, which he has often found benefited, after the inflammatory stage has passed, by a dilute solution of this salt.

Dr. Delieux has employed the hyposulphite of soda and silver most frequently in acute and chronic urethritis; and here he has found it most efficacious, especially in chronic cases, and at the end of the acute stage. He does not set it forth as a specific, nor as pre-eminent among local remedies; but as one to which recourse may be had among others. He generally uses an injection of from 50 centigrammes to a gramme ($7\frac{1}{2}$ to 15 grains) of the salt in 100 grammes (about three ounces) of distilled water. It produces little or no pain, and does not act as an astringent.—*Association Medical Journal*, Jan. 14, 1853.

12. *New Mode of Applying Leeches*.—Dr. SLOAN states (*Monthly Journal of Medical Science*, Aug. 1852) that he has hit upon a plan by which very indifferent leeches may be rendered most efficient bloodsuckers.

"The idea," he says, "first occurred to me some years ago, while waiting the effect of a dozen, which were remaining attached to the skin, but scarcely drawing blood.

"It struck me that, as leeches are remarkably influenced by atmospheric changes, it might be worth while trying the experiment of partially exhausting the air over them, and thus inducing the sensation of a low barometer. On covering them with a cupping-glass, and by means of the air-pump producing

a moderate degree of rarefaction, an immediate change in the style of sucking took place; the leeches displayed an activity I have rarely seen equalled by those of the best quality when applied in the usual way; they rapidly became fully distended, and fell off. By continuing the exhausting process afterwards, which is a common enough practice, a sufficient quantity of blood was readily obtained; and I remarked that the erysipelatous appearance, which usually followed leech-bites, in this patient was prevented.

"It is quite possible that the increased activity under the exhausted cupping-glass may arise from the skin being rendered more vascular, and thus yielding its blood more readily; or we may even view the leech in these circumstances as an elastic sac, communicating with the circulation by a firm canula, so that the blood may flow into the animal without much exertion on its part; but, whatever the cause, the result will be found satisfactory. I have never had occasion to try the effect of snipping off the tails of the animals under this plan, but possibly it would be eminently successful.

"The operation is almost as quickly performed as cupping, and has this advantage, that it requires no dexterity. I think any nurse of ordinary intelligence might acquire the necessary skill in a single lesson.

"In charitable institutions, this plan would be especially advisable, as by it two leeches might be made, on the average, to do the work of three, thereby effecting a considerable saving, and the necessary apparatus would always be at hand. Nothing could be better for the purpose than those cupping instruments in which the vacuum is produced by an air-pump. Increasing the vascularity of the skin by a cupping-glass previous to applying the leeches, seems to make them bite more readily, probably by rendering the odour of the blood more perceptible."

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

13. *General Pathology and Treatment of Dyspepsia.* By Prof. J. H. BENNETT. —By dyspepsia (from *δυσπεπτα*, to digest with difficulty), is generally understood, all those functional derangements of the stomach which are primary in their origin, that is, not dependent upon, or symptomatic of, inflammation or other disease in the economy. Such a disordered condition is exceedingly common, and often constitutes the despair of the physician, arising, as it frequently does, from causes which are often obscure, or, if discovered, are beyond his control. This will become apparent by considering, in the first place, those circumstances which require to be united to secure a healthy digestion. These are—1st. A proper quantity and quality of the ingesta. 2d. Sufficient mastication and insalivation. 3d. Active contractility in the muscular coat of the stomach. 4th. Proper quantity and quality of the gastric, biliary, and pancreatic fluids. 5th. A consecutive and harmonious action of the intestinal canal. Dyspepsia, or indigestion, may be produced by any cause which occasions derangement of one or more of these conditions; and hence why so many different circumstances may produce somewhat similar symptoms, and why so many different remedies have been found effectual in various cases. Notwithstanding that you will frequently meet with instances which baffle all preconceived rules, there can be no doubt that a careful attention to the essential physiological conditions above enumerated will, in the great majority of cases, conduct you to a successful rational treatment. Thus—

1. Of all the causes of dyspepsia, excesses in eating and drinking are the most common. An over-distended stomach, or too rich a meal, not unfrequently induces a feeling of weight or fullness in the epigastrium, nausea and eructation of acid, bilious or gaseous matters, with a loaded tongue, headache, and other general symptoms. This is acute dyspepsia, or the *embarras gastrique* of the French. Occasionally, there is more or less vomiting of bilious

matter, when the attack is vulgarly called a *bilious seizure*. If called into such a case, immediately on its occurrence, and before the ingesta have left the stomach, as determined by the sense of load at the epigastrium, an emetic should be given; but if vomiting be present, it should be assisted by warm diluents. As soon as the stomach is quieted, or, if you have been called in at a late period, when the ingesta have passed into the intestines, a purgative pill should be administered, consisting of four grains of calomel, with four of compound extract of colocynth, followed in a few hours by a purgative draught of salts and senna. If necessary, an enema may also be given. The purging, with a day or two's confinement to farinaceous food, will generally get rid of such an attack; but their frequent repetition leads to the chronic form of dyspepsia, when careful regulation of the diet, with exercise, must constitute the chief treatment. Hence the advantage of what is called "change of air," and much of the benefit which is derived from watering-places. Chronic dyspepsia, however, is far more commonly caused by excess of spirituous and vinous drinks, than by eating, when abandonment of the evil habit is a *sine qua non* in the treatment. Tea-drinkers are very liable to the disease, and its frequency among female servants is probably owing to this cause.

2. It may frequently be noticed, that those who have acquired the habit of eating rapidly are more or less dyspeptic. I knew a journeyman printer who was much tormented with indigestion, but who was cured by changing his residence. The cause of this was for some time a mystery, but on again changing his house the disease returned, although no apparent cause could be discovered. I ascertained, however, that it depended not on the locality *per se*, but on its distance from the printing-house. When far off, he eat his dinner with his family rapidly, having only just time enough to walk home and back within the hour. When he lived near, the time otherwise spent in walking was occupied in eating, or in cheerful converse with his wife and family. Since I made this observation, it has often occurred to me that the distant residence of artisans from their place of employment may be the occasional cause of the dyspeptic symptoms they frequently possess. With regard to the exact object of the saliva in the process of digestion, whether it be to convert the farinaceous compounds of the food into glucose, or, by its viscosity, to mix up air with the portions swallowed, is not positively determined; but its necessity for the digestion of man is shown by cases where the under lip has been lost by accident or disease, and where salivary fistulæ have formed, in which dyspepsia is generally present, and in which the disordered digestion has been cured by operations that, by restoring the parts to their normal condition, prevent the escape of saliva. Again, persons habituated to the dirty habit of spitting, are for the most part dyspeptic; and it has been asserted that the pale countenances of the inhabitants of the United States, and the leanness of their persons, are owing to this cause. In all cases where dyspepsia can be traced to this source, the treatment must be obvious.

3. The contractile movements of the stomach, which, by kneading the ingesta, and keeping them in constant motion, secures an intimate admixture with the gastric juice, and the rapid transference to the duodenum of such portions of it as are transformed into chyme, are evidently of immense importance to a proper performance of digestion. The experiments of physiologists have shown that digestion in gastric juice out of the stomach is much slower than in it, and that section of the pneumogastric nerves, by arresting the contractile movements, only permits the circumference of the mass in contact with the secreting surface to be digested. These facts at once explain the well-known influence of mental emotions upon the stomach. Contentment and hope are as favourable, as dissatisfaction and despondency are opposed to, good digestion. Nothing is more common than dyspepsia among literary men who overtask the mental faculties; among young persons of very excitable minds; and among individuals of a melancholy temperament, hypochondriacs, &c. &c. It is in such cases that cheerful society, active and appropriate occupations, change of scene, removal from mercantile or literary employments, different trains of thought, and so on, are beneficial. Hence also many of the good effects of travel, visiting watering-places, &c. &c.

4. Our knowledge with regard to the offices performed by the gastric, biliary, and pancreatic juices in digestion has of late years been much advanced. Thus, the gastric juice more especially operates on the albuminous, and the pancreatic juice on the fatty compounds of the food. The function of the bile is perhaps more obscure, although it probably acts as a means of precipitating or separating some of the excretory matters from chyme, and so facilitates assimilation of the nutritive portions. Digestion may be deranged by all those causes which too much increase or diminish the secretion of these three fluids. Thus excess of acidity in the stomach is one of the most common causes of dyspepsia, producing that form of it which accompanies scrofulous and tubercular diseases. It may be in such excess as to neutralize the alkaline action of the pancreatic juice, and render it difficult or impossible to emulsionize fatty matters. In such cases, alkalies, with bitter tonics and the direct introduction of animal oils in excess, are indicated. On the other hand, the gastric juice may be diminished in quantity, as frequently occurs in persons who suddenly overtask the powers of the stomach at feasts, or in old persons with feeble digestion. The sense of load after eating is generally indicative of slow digestion from this cause. In acute cases, a stimulant rouses the stomach to increased action, and hence the moderate use of drams and generous wines after dinner is occasionally useful. In old persons, the sense of load and feebleness is best removed by giving up tea, and drinking at night a little weak brandy and water. In chronic cases, acids are indicated, especially muriatic acid. The *tr. ferri co.* of the pharmacopœia, is a useful preparation in chlorotic females. We have no distinct means, as far as I am aware, of rousing the pancreas into action, and yet many cases are on record in which fatty matters have passed undigested through the alimentary canal in consequence of obstruction to the pancreatic duct. In such cases, and all those in which fatty matters are difficult to digest, alkalies, especially the liquor potassæ, with vegetable tonics, are indicated. When the bile is deficient, constipation and dyspepsia are usual results, and are to be relieved by gentle mercurial purgatives, with extract of taraxacum, and by remedies such as rhubarb, and especially the compound rhubarb pill, which, by acting on the duodenum, also favour the flow of bile into the upper part of the alimentary canal. Dr. Clay, of Manchester, has recommended in such cases the administration of ox-gall, a remedy, which, although not extensively given, is evidently rational, and calculated by its purgative action to be highly serviceable. Excess of bile, on the other hand, ought to be treated by drastic purgatives, diuretics and diaphoretics, according to circumstances, to cause excess of excretion. Exercise should also be insisted on to call the lungs into action, and thus relieve the liver in its office of separating hydrocarbon.

5. A derangement of the consecutive and harmonious action of the alimentary canal is another frequent cause of dyspepsia; for it is as necessary that those portions of the food which are not assimilable should be removed out of the economy, as that the nutritive materials should be absorbed. Hence, whatever impedes the contractility of the intestinal canal, whatever alters the structure of its mucous membrane, or whatever mechanically obstructs its caliber, may always be observed to induce dyspeptic symptoms. The removal of these various conditions, whether by stimulating the nervous centres, by appropriate diet, or by purgatives and astringents, as they may be required, need not be more particularly dwelt upon.

In many cases of dyspepsia, two or more of these classes of causes may be combined, so as to render the indications for treatment complex and apparently contradictory. In other cases, one or more causes may exist, although from the indications presented they cannot be determined, when our treatment must always be more or less vague and unsatisfactory. Lastly, there are a few instances where dyspepsia can only be explained by *idiosyncrasy*, in which we find this or that particular article of diet to derange the digestive functions, and in which avoidance of the offending cause is the only plan that is attended with success.

In addition to the different kinds of dyspepsias to which I have directed your attention, it is practically important to keep in remembrance the leading

symptoms which may be present, and the remedies by which they may be removed. These are anorexia, acid eructations, sense of load in the stomach, cardialgia, vomiting, flatulence, palpitations of the heart, and cephalalgia. Some persons talk of a stomach cough, which, however, is more commonly dependent on irritations in the œsophagus or pharynx, which have hitherto been overlooked. I have already alluded to the mode of treating most of these symptoms. Palpitations of the heart often occasion alarm in young dyspeptic persons, and in addition to remedies directed towards the stomach, change of scene, removing attention from the affected organ, and varied reading should be enjoined. The sense of load in the stomach is most frequently removed, as we have previously said, by acids, whilst acid eructations and cardialgia are best relieved by alkalies and bitter tonics. Vomiting and flatulence are often very troublesome symptoms, and the varied remedies which may be employed in a case of chronic vomiting may be gathered from the following history:—

CASE.—*Dyspepsia—Vomiting of Fermented Matter containing Sarcinæ.*—Thomas Spence, æt. 53, a weaver. Admitted September 6, 1852. He states that, for fourteen or fifteen years past, he has been subject to occasional vomiting, which generally occurred on Sundays, owing, he supposes, to want of exercise at his usual employment. On these days he scarcely ever took his meals from fear of the almost certain vomiting which would follow. For two or three years past he has been liable to frequent heartburn, water-brash, and acid eructations, but was able to continue at his usual employment till about six months ago. Since then, he has been gradually losing his appetite, and his strength has become much prostrated. He has never vomited blood or any dark-coloured matter, and has never passed any such by stool. On admission, tongue clean; no difficulty in deglutition; appetite capricious, but always best in the morning and early part of the day. Shortly after taking food, he begins to have uneasy sensations in the epigastrium, sickness, and a sense of weight at the stomach. When these symptoms appear, the abdomen generally begins to swell, and in about an hour to an hour and a half, the food is frequently vomited. The rejected matters consist generally of the half-digested food, with a thick, dirty, frothy scum on the surface, resembling yeast. He has also frequent pyrosis, acid eructations, and flatulence, the latter sometimes so great as to occasion a sensation of choking, especially after vomiting. These symptoms are worse after some kinds of food than others: oatmeal, especially in the form of porridge, produces them in the severest form; broths, vegetables, or any kind of slops, do not agree with him; animal food suits him best, but when even this is taken for any length of time, the symptoms soon reappear. The abdomen at present is much swollen, very tense, and tympanitic on percussion, with considerable tenderness over the epigastrium. The bowels are generally constipated; the stools usually of a dark colour and hard consistence. He has occasionally slight pain and difficulty in voiding his urine, which is slightly phosphatic. Other functions are normal.

On taking charge of this patient on the 1st of November, I found him vomiting from time to time large quantities of fluid mixed with undigested matters, on which there gathered, after a short time, a thick brownish scum, exactly resembling yeast. On examining this scum with the microscope, it was ascertained to contain a large number of *sarcinæ ventriculi*, mingled with starch corpuscles, more or less broken down, and granular matter. From the ward-books, I learned that his treatment had consisted in the successive administration of—1. The local application of leeches; 2. Of the sulphite of soda, in scruple doses, with two grains of aromatic powder three times a day; 3. Of half a grain of protochloride of mercury at night; 4th. Of a scruple of the sulphite of soda every three hours, which was subsequently increased to half a drachm; 5. Of creosote mixture; 6. Of a naphtha mixture; 7. Of bismuth and aromatic powders; and 8. Of pills of calomel and opium. These different kinds of treatment, some of which, especially that of the sulphite of soda, had been continued for several weeks without intermission, seemed to have produced no good effect.—November 11. During the last four days, he has vomited every night, four hours after dinner, that is, about 6 P. M.

The ejected matter presents the same yeast-like character formerly described; but the sarcinæ, though still abundant, are not so numerous. He complains of a great sense of distension, and a feeling of "working" or "bubbling" in the stomach shortly before vomiting. R. Acid. hydrocyan. dil. M. xviii; Syrup. aurant. ʒj; Aquæ ʒii; M., half an oz. three times a day.—November 20. The hydrocyanic acid checked the vomiting till last night, when it returned with more violence than ever.—November 24. Vomiting still continues regularly every day. Omittantur mist. acid. hydrocyan. R. Liquor potas. ʒss; Aquæ ʒvss. Two table-spoonfuls to be taken every four hours.—December 2. Alkaline mixture again checked the vomiting, which, however, returned last night to a slight degree. Applicet vesicat. 4 x. 5 Epigastrio.—December 8. Vomiting has once more returned daily since last report. R. Tinct. ferri muriat. ʒj. Sumat ʒss *ter in die ex aqua*.—December 16. The vomiting has been again checked, but once more returned in a slight degree at 1 o'clock this morning. The matter ejected exhibits very little of the usual frothy scum, but consists of a brown liquid-like coffee, with a few shreds of undigested food. It is of intensely acid reaction, and contains only a few sarcinæ. The dose of the acid tincture has been reduced to M. xv. The diet during this period has been principally animal, porridge and vegetables invariably increasing his complaint. To-day he left the hospital to visit his friends in the country, expressing himself as greatly relieved.

Commentary.—The kind of chronic vomiting and dyspepsia which is above described has been long known in Scotland, and was described by Cullen as a form of pyrosis. It has been supposed to be associated with the habit of largely consuming oatmeal as a principal part of the diet, although its real pathology was unknown. In 1843, Mr. Goodsir discovered in the ejected matter from the stomach, in a case of this kind, organized forms, which, from their resembling a woolpack, he denominated *sarcina*. He considered that they were of a vegetable nature, and by multiplying fissiparously, communicated to the contents of the stomach the appearance of yeast, which is also known to be dependent on the development and growth of vegetable structures. This occurrence in the stomach of course explains their frequent presence in the feces, although, whether they ever are developed in the intestines is unknown. On one occasion, however, I have seen them in the urine, which occurred in the case of a gentleman under the care of Dr. Mackay, of this city. The sarcinæ vesicæ were in that case uniformly smaller in size than the sarcinæ ventriculi. They have also been discovered in an abscess of the lung by Virchow. The exact mode of formation and origin of these structures are unknown; but little doubt can exist that their presence is the real cause of the chronic vomiting and other symptoms of the individuals affected, and that the cure will depend on such means as are capable of insuring their destruction and preventing their return. It must be obvious, however, that the same means which destroy or check vegetable growth on the surface of the body (see Favus), are not applicable to the mucous lining of the stomach. Besides, we are ignorant whether these parasites grow in an exudation poured out on the mucous membrane, or are developed only in a fluid. Again, it is very possible that once introduced from without, the conditions necessary for their development may be dependent on some kinds of ingesta, a view which derives support from the facts observed in the case before us, namely, that they were always increased by farinaceous kinds of food. On all these points, however, we are as yet ignorant, and our efforts at cure hitherto have not so much been directed to cutting off the sources of growth, as to destroying it after it has proceeded to a certain extent. With this view it has been imagined that the sulphite of soda would destroy them, by causing, on its union with the gastric juice, the extrication of sulphurous acid, which is so destructive to vegetable life. This remedy has consequently been given, and, it is said, with success; but in the present case it was of no benefit. Subsequently, a variety of medicines were given, several of which succeeded in checking the vomiting for a time. Indeed, it was remarked that the mere circumstance of changing the medicine was sufficient to stop the vomiting for several days, when it returned and continued as before. Of all the numerous remedies tried, the tr. ferri

muriatis seems to have done most good.—*Clinical Lectures in Monthly Journal of Medical Science*, February, 1853.

14. *Pathology of Rheumatism and Gout.* By Professor J. H. BENNETT.—The present theory with regard to these affections is, that they are both connected with an increase of lithic acid in the blood. In rheumatism, this is dependent on excess of the secondary, and in gout, on excess of the primary, digestion. In rheumatism, however, there is considerable excretion of lactic acid by the skin (Todd), whilst in gout there is an excess of soda, which, uniting with the lithic acid, produces a compound of lithate of soda, that may be detected as such in the blood (Garrod), while sometimes it exudes into the cellular tissue of the skin, constituting tophaceous deposits. In both diseases, there is an undue balance between the excess of lithic acid and the power of excretion—in rheumatism by the skin, and in gout by the kidney. This pathology serves to explain the similitudes and differences existing between the two affections. In both there is a certain constitutional state, dependent on deranged digestion, during which exciting causes occasion local effects. These exciting causes in rheumatism are bad diet, hard work, exposure to cold and wet, and its subjects generally are the poor and labouring population. In gout, the causes are good diet, indolence, repletion, or indigestion, and its subjects are for the most part the rich and sedentary. The local manifestations in both are acute wandering pains, with pain and swelling—in rheumatism of the large, and in gout of the small joints, constituting the acute attack in the one, and the so-called regular attack in the other. These are combined with a tendency to various complications of the internal viscera, which are more or less dangerous to life.

The general indications of treatment are, in both diseases (1), so to regulate the nutritive functions as to insure a due balance between the amount of matters entering the blood as the result of digestion, primary or secondary, and the amount of matters discharged from the economy by the excretory organs. (2) To conduct the acute attack to a favourable termination, carefully watching the internal viscera, and being prepared to act with vigour should these become affected. Hence the treatment of these diseases resolves itself into what may be called curative and preventive—the first having reference to the acute attack, the second to the means most likely to hinder its return; the one must be carried out by remedies which act upon the blood and excretory organs, the other by the management of diet and exercise.—*Monthly Journ. Med. Sci.* Dec. 1852.

15. *Treatment of Acute Rheumatism by Nitrate of Potash.* By Prof. J. H. BENNETT.—Although the general pathology above mentioned [see preceding article], which considers rheumatism as a blood-disease, may be considered on the whole as correct, we are not yet enabled to explain by it the symptoms of an acute attack of the disease, where, in addition to the constitutional disorder, we have local pain, occasional heat, redness and swelling, with febrile symptoms. Most practical men have attributed these phenomena to a superinduced inflammation, although it has not been shown that exudation occurs, or that it is followed by the usual results of that condition. Besides, its erratic character is opposed to what we know of the process of true inflammation, and calling it an unhealthy inflammation in no way clears up the mystery. The real pathology of acute rheumatism, therefore, has yet to be determined, and, as a preliminary step, a careful histological examination of the affected tissues is absolutely necessary. So far as I am aware, this has never yet been attempted, if we except some observations by Hasse on the structure of the bones in rheumatism (see the *Monthly Journal* for June, 1847).

Our treatment of this disease, therefore, is purely empirical, sometimes directed against the pain, at others, against the supposed inflammation; now attempting to combat the pathological condition of the blood, then striving to remedy its effects by acting on the excretions; and not unfrequently giving specifics, in the hope that any change in the constitution, however produced, may be beneficial. In no disorder, probably, has such a crowd of opposite remedies and plans of treatment been extolled, and yet none of them can be

depended on, so that it has been imagined that six weeks' rest is the most useful prescription (Warren). The latest author on rheumatism endeavours to explain this by observing, that this need not be wondered at by "those who consider the true nature of the disorder, and the variety of circumstances under which the physician may be called upon to minister to his patient's relief. The bleeding, which in the young, plethoric, and robust, may be necessary to allay excessive vascular action and cause free secretion, may in the weakly induce irritability of the heart, and a consequent attack of cardiac inflammation. The opium, which in one person may prove of the greatest service in promoting free perspiration, and in allaying the general irritability of the system, may in another check the biliary and other secretions, and thus prevent the elimination of the rheumatic poison. The continued use of calomel, and the constant purging, which may be beneficial to one patient by removing large quantities of unhealthy secretions, may unnecessarily exhaust the strength of another, and tend very greatly to impede recovery. And so in regard to every remedy which has been proposed. What is useful at one time proves useless, or positively injurious, at another; and the conclusion is forced upon us, that what is wanted 'is far less the discovery of untried methods of treating disease, than of discriminative canons for the proper use of those we possess;'—far less the discovery of any new medicines, than the adaptation of our present remedies to the exigencies of each case." (Fuller on *Rheumatism*, p. 73.) These judicious observations may serve to explain the cause of our failure; but until we obtain more exact information regarding the special pathology of rheumatism, it is in vain to hope for a rational treatment.

For my own part, I generally treat rheumatism on what is called "general principles;" these are, to alleviate severe pain by anodynes, diminish excessive vascular action by moderate bleeding and saline antiphlogistics, and encourage every attempt at critical discharges by diaphoretics, diuretics, purgatives, etc. Occasionally, I have tried the effects of special remedies in this disease, and watched a series of cases, all of which were treated in the same manner. Thus I have tried aconite, and believe that alone it is of little service; colchicum, also, I have given frequently, and am of opinion that in pure rheumatism it is of no advantage, although in gout it is invaluable. This session (1851-2) you have witnessed another trial of this kind with the nitrate of potash, a remedy formerly recommended by Dr. Brooklesby, and which has been given with good effect by M. Gendrin, in the wards of La Pitié, in Paris, as recorded by Dr. Henry Bennett (*Lancet*, 1844, vol. i. p. 374). It has more lately been pressed on our attention by Dr. Basham (*Medico-Chir. Trans.* vol. xxii.), who tells us that from one to three ounces of the salt, if freely diluted in water, may be taken by the patient in the course of twenty-four hours, without any injurious results, but with the effect of relieving in a marked manner the swelling, heat, and pain in the joints.—*Monthly Journ. of Med. Sci.* Dec. 1852.

16. *Treatment of Spasmodic Diseases.*—Dr. ALEXANDER WOOD, in an interesting paper (*Monthly Journal of Medical Science*, February, 1853), points out the irrational and contradictory treatment usually pursued in spasmodic diseases. In the severer convulsive diseases, as tetanus and hydrophobia, he remarks, wine, brandy, and opium—stimulants—are conjoined with the cold affusion or cold bath—sedatives. Opium in small doses, which as a stimulant and soothing remedy might prove useful, is counteracted by tobacco, a sedative, or by irritating and depressing purgatives. We are told to administer the most violent purgatives in these diseases, and are encouraged to persevere in their employment to an enormous extent, by the hope of eventually obtaining from the bowels an assortment of strange and heterogeneous matters.

"In these diseases," he adds, "where the violent muscular effort demands a large supply of blood, and where the want of that supply increases the irritability of the system, we are taught to bleed, beginning with from thirty to forty ounces, and repeating it if need be. What end can bloodletting possibly subserve, unless in those exceptional cases, to be afterwards specially considered, where urea

exists in that fluid? There is no morbid matter in the circulating fluid which bleeding can remove! There is no inflammation which it can subdue! On the contrary, that terrible muscular action, like a consuming fire, is draining away the nutriment of the system even faster than your relentless lancet, and when the supply is exhausted the flickering taper will expire.

"Or, in the case of an unhappy infant, ill-thriven, ill-fed, who has imbibed irritability of constitution with the milk of a gay, luxurious, self-indulgent, and nervous mother, and who has had that irritability confirmed by a long course of ill-regulated management; why will you, when the irritation of a tooth has proved the cause of convulsions, not rest satisfied with removing the immediate pressure, and then set about improving the general system, in which the real danger lies, but apply cold to a head where no symptoms of congestion or inflammation is to be found, harrow the gums with daily scarifications, and administer a powerful purgative, glorying in the expulsion of depraved secretions, which only indicate the impaired state of nutrition, and the necessity for a very opposite kind of treatment?"

Dr. Wood very earnestly solicits attention to the following therapeutical considerations, based on the physiology and pathology of spasmodic affections:—

1. The importance of great attention to a proper supply of nutriment and of air, in all circumstances where either hereditary tendency or other circumstances are likely to develop convulsive diseases. Trismus nascentium is epidemic in the West Indies, from the absurd way in which infants are there treated. The same disease was banished from the Dublin Lying-in Hospital by proper attention to ventilation and cleanliness.

Laryngismus stridulus is never so satisfactorily treated as by change of air. The mortality of tetanus in our naval stations in the West Indies has been very much reduced, mainly, according to Dr. Dickson, by improved hygiene.—(*Med.-Chir. Trans.* vol. vii. p. 765.)

2. Let us divest our minds of the idea that it is necessary to treat the fit in any of these diseases. It is only a part of a train of morbid phenomena, and though the part most striking to the bystander, ought not to make the same impression on the intelligent physician. No one now thinks of treating the fit, either in epilepsy or in chorea, and why should we think it necessary in tetanus or hydrophobia?

3. Is it not worthy of consideration whether the obstinate constipation in tetanus and lead poisoning may not be a spasm of the muscular coat of the intestines analogous to that of the voluntary muscles, and, like it, not to be overcome by brute force (i. e., purgatives)? Certain it is, that in lead colic the finger, introduced into the rectum, is held by the sphincter as by a vice, and pressed tightly upon by the gut, and that this pressure returns at each paroxysm.¹ Certain it is also, that the retraction and hardness of the abdomen, associated by Merat² with that internal constriction, is found also to exist in tetanus, though I am not aware that any one has ever explored the internal state of the bowel in that disease. It may be necessary to remove the morbid secretions in the bowels, though every intelligent physician will have to balance the amount of irritation produced by their presence with that caused by the drastic purgatives necessary for their removal. The spasm which retains them is the effect of the disease. It is to treat symptoms, to attack it alone; and when we succeed in overcoming the disease, the bowels will spontaneously relieve themselves. Tralles³ found opium succeed in a case of ileus where purgatives had failed. I have seen the same. Lentilius⁴ has confirmed this; and in a severe form of colic, Bonn⁵ became convinced by experience that it was the most powerful remedy.

4. The most efficient and the most frequent agents in the production of these diseases are sedatives. Bloodletting is a most powerful sedative, and if carried to any extent in a healthy person produces convulsions. Is bloodletting, then,

¹ Tanquerel—*Traité des Maladies de Plomb.* etc. p. 210.

² *Traité de la Colique Méallique.*

³ *Opii. Usus et Abusus,* sect. 2. p. 260.

⁴ *Eph. Mat. Cur.* dec. 8, ann. 1, p. 181.

⁵ *De Officio Medici.*

a suitable remedy in these affections? In chorea, it was formerly practised, and is now abandoned, from the injurious effects which it produced. In delirium tremens and hysteria, its use has also been given up. In epilepsy, it is rarely used by intelligent physicians, except to meet the requirements of secondary affections; and if we still retain its employment in the more severe convulsive diseases, it is probably only because their rapid course and frequently fatal issue makes it very difficult for us to ascertain the effect of any treatment.

5. In one class of convulsive diseases bloodletting seems, in the present state of our knowledge, to be indispensable. Where urea exists in the blood and produces convulsions, it must either be expelled or counteracted. We scarcely know how to accomplish the latter indication, and therefore are driven back on the former; but, even while seeking by bloodletting to get rid of the urea which is mixed with that fluid, we must never forget that it "both acts on the nervous system as a narcotic poison and impoverishes the blood, inducing degeneration of the tissues;"¹ and that, therefore, while we take blood to remove the poison, we must do our utmost to replace the nutriment which we are unavoidably compelled to abstract along with it.

6. Our views on this subject would become more definite and precise, could we avoid imagining that spasm implies augmented strength. It is not easy for us, when seeing the violent agitation of the system which prevails, to divest our minds of the idea of great power being developed, but the same remarks apply to mania, in which disease, thanks to the exertions of Dr. W. A. F. Browne,² general depletion, tartar emetic, brisk cathartics, and ice to the shaved scalp, are no longer in such vogue as they once were.

If such are the objections to the routine practice, what course ought to be pursued? It is easier to point out error than to demonstrate truth. But I venture to suggest—

7. That sedatives should be cautiously used. Chloroform and cold affusion have each proved fatal in delirium tremens.

8. That every effort should be made to put into the system as much nourishment as it is capable of beneficially employing.

9. But, if there is any faith to be placed in antipathic treatment, it is to stimulants we must most trust.

10. It is worth observing, that most of those chemical agents which produce convulsions, acting, as has been already said, in large doses as sedatives, do in small doses act as stimulants.

11. We find also, that where the minor spasms, as cramp, have been excited by irritation of the peripheral distribution of one class of nerves, as those of the mucous lining of the bowels, they are often relieved by irritation of the peripheral distribution of another class of nerves, as by friction on the skin.

12. The cerebral functions, more especially volition and sensation, being much in abeyance, any stimuli, whether mental or physical, by which they can be excited, should be freely given. It was on this principle that Boerhaave prevented the recurrence of epileptic attacks, by directing a red-hot iron to be applied to any who might be seized.³

13. The extreme sensitiveness to all irritations which exists whenever the spinal predominates over the cerebral system, suggests the propriety of enforcing the most absolute quiet, and preventing the access of all bodily and mental stimuli. In tetanus and hydrophobia, the creaking of a shoe, the slamming of a door, the sight or even the thought of water, or the gentlest zephyr playing on the surface of the body, excites a fit. Hence Armstrong tells us, that in tetanus those patients recover best who get little active treatment, but are nursed, as it were, through the fit.⁴

14. And if sources of irritation ought to be prevented, those actually existing ought to be removed, but never by irritants which are more powerful than themselves. This surely gives sufficient latitude to the most devoted admirer of

¹ Williams's Principles of Medicine, p. 150.

² Monthly Journal, 1841, p. 75.

³ Falconer on the Influence of the Passions, p. 100.

⁴ Lectures, edited by T. G. Thomson, p. 572.

the gum lancet, the bolus, or the bag and pipe, while it suggests to him a little caution in these somewhat coarse though most popular remedies.

15. And lastly, if I have not succeeded in pointing out any one remedy which stimulates the cerebral without exciting the spinal system, it is because few, if any, such are known. It is a subject of investigation well worth attention. And if no particular plan of treatment has been announced, which can be unhesitatingly recommended, I am perfectly satisfied if I have created any doubt as to the course which at present is too unhesitatingly followed. I think, at least, something has been done to show how much more constitutional these affections are than is usually supposed, and thus to open up new plans for prevention, if not for cure. And if in acute mania, in puerperal insanity, in delirium tremens, in chorea, in laryngismus, and may I add in epilepsy also, empiricism or the influence of authority has induced us to abandon antiphlogistic treatment, and to adopt stimulant and soothing remedies, I do not despair of a sounder pathology soon prevailing in regard to this whole class of affections, and of the discovery yet being made, that they are much more amenable to treatment than has hitherto been supposed.

17. *Treatment of Diabetes.*—M. BOUCHARDAT, in a memoir published in the 16th vol. of the *Memoirs of the French Academy*, declares that by the following plan he can cure the majority of cases of diabetes—the test of cure being not only present removal of the sugar from the urine, but the ability of the patient to employ feculent aliments without its reproduction. He, however, requires the intelligent co-operation of his patient, and, above all, the frequent testing of the urine, by the patient himself,¹ as a means of ascertaining progress and guarding against relapse. The means chiefly to be relied upon are those of a hygienic character; and, at all events, the power of these should be exclusively ascertained at first, before resorting to any medicinal agents.

1. *Diet.*—As long as the urine exhibits sugar, all feculent and saccharine aliments must be entirely excluded; but the patient need not be confined to what is called an exclusively flesh diet, although this, when not repugnant to him, is the best. Every description of meat, dressed with the usual sauces and seasonings (to the exclusion of flour, however), may be employed; and for those who can get over the prejudice against it, the flesh of *carnivorous* animals, M. Bouchardat says, is best. By proper management (and what cannot a French cook do?) that of the cat or fox becomes a highly relishing viand. Several poor patients, who otherwise would have been unable to procure a flesh diet, have resorted to this means with advantage. Fish, in all its numerous varieties, forms a valuable resource for both rich and poor, and may be eaten with abundance of oil and a moderate quantity of vinegar. Eggs, again, so susceptible of varied modes of preparation, are excellent; and although milk is forbidden, good fresh cream and all kinds of cheese are allowed. Except in extreme cases, green vegetables and salads, although they contain some sugar, starch, or gum, may be taken in moderate quantities; but abundance of oil, or the yolk of eggs, should be conjoined. For such patients as cannot well overcome their liking for bread and other feculents, M. Bouchardat has, during the last ten years, had a bread prepared of flour containing 70 per cent. of gluten.

As the prohibited feculent and saccharing bodies belong to the respiratory group of alimentary substances, we have to choose others from the same group; and those best calculated to supply their places are fatty bodies and alcoholic drinks. Among the latter, Bordeaux wine occupies a prominent place, as much as from one to two litres (from two to four pints) being admissible *per diem*, which, at 10 per cent. of alcohol, would supply about 150 grammes (2½ oz.) of this substance in the 24 hours. Fatty bodies must not be given too exclusively, lest they excite disgust, but mingled with other aliments, from 150 to 200 grammes being required, in addition to the alcohol. Beer is

¹ For indicating the presence of sugar in the urine, he employs lime-water, and believes it to be a safer test than the copper solution; for the quantitative determination he employs exclusively Biot's polarizing apparatus.

objectionable, from containing dextrine. Coffee, drunk without milk or sugar, and to which a little rum, cream, or brandy may be added, is a good drink. To relieve thirst, Seltzer, Spa, Vichy, or soda water may be taken; but acid drinks, so keenly desired by the patients, are very objectionable. The patient should always eat and drink in moderate quantities, slowly masticating his food. This practice tends to the relief of the attendant dyspepsia, and to assist the distended stomach to return to its normal dimensions. A flannel bandage applied around the epigastrium contributes to the same end.

2. *Clothing*.—As chills operate very injuriously on these patients, warm flannel clothing forms a valuable protective agent, and beneficially excites the languishing functions of the skin. Indeed, some medicinal agents are of no avail unless aided by complete flannel clothing, which maintains diaphoresis. General frictions are very useful, and a moist warmth of the feet should be maintained.

3. *Exercise*.—To recommend this indiscriminately would be injudicious, for many patients are too feeble to undertake it. But when their strength has become somewhat recruited by regimen, walking, gymnastics, agricultural labour, &c., much expedite the cure, and are found, as recovery is approaching, to enable the feculent aliments to become utilized by the system.

4. *Pharmaceutical Agents*.—M. Bouchardat entertains a high opinion of the utility of carbonate of ammonia (from 5 to 15 grammes—77 to 230 grains—in the 24 hours), providing flannel clothing be worn. Other *alkalies* suffice for slighter cases, when the urine contains uric acid as well as glucose. Employed consensually with out-of-door exercise, they seem to exert great influence in preventing the reappearance of sugar in the urine, when feculent aliments are resumed. *Opiates*, if given alone, are mere palliatives; but when conjoined with other remedies, and in moderate doses, so as to act on the skin, they are very valuable. M. Bouchardat sometimes prescribes Dover's powder, but prefers the old theriaca before all other preparations, without defending the absurd complexity of its composition.

In severe cases of glucosuria, then, diet, exercise, and flannel clothing constitute the basis of treatment, carbonate of ammonia and opiates best aiding their action. Other remedies have their occasional uses, such as iron, tonics, chloride of sodium, and antiscorbutic plants. M. Bouchardat often employs emetics at the commencement, and endeavours to modify the disturbed functions of the liver by aperients, of which ox-gall with rhubarb are the best.

Circumstances influencing the effects of Treatment.—Foremost among the favourable indications in a case is the *rapid return of the urine to a normal state*, which may take place in from 24 to 48 hours after the feculents have been excluded. The *recent date of the affection* is another highly favourable circumstance; and because it is so, M. Bouchardat urges testing the urine whenever the slightest suspicion can be held, and for the detection of relapses, which are frequent and insidious. Other favourable circumstances are the retention of considerable *embonpoint*, the easy circumstances of the patient, and his being in possession of great perseverance.

The *unfavourable circumstances* are the reverse of the above; but negligence is still worse than poverty, as the poor man has some resources. The treatment of the case is usually ill managed in *hospitals*, owing to the vitiated air, the absence of exercise, the sameness of diet, and the insufficiency of surveillance. The existence of a great *appetite* is a common and not unfavourable circumstance, requiring only moderation in its gratification, at meals not too far separated. *Want of appetite* is a far more unfavourable sign, which should be actively combated. M. Bouchardat has found small doses of rhubarb, and exercise in the open air, of advantage. *Obstinate constipation*, resisting the most varied purgatives, is a bad complication, indicating disease of long duration, which has produced important modifications in the condition of the alimentary canal. Fatty substances, combined with matters which leave residue, as spinach and gluten-bread with bran, are here indicated. *Cold and damp air* is unfavourable to diabetic patients; but M. Bouchardat has had patients from Algeria, and has not derived advantage from sending others to Italy. M. Bouchardat agrees

with Dr. Prout, in considering the appearance of *albumen* in the urine, which is often met with as an unfavourable occurrence. The prognosis of saccharine albuminuria is not so serious as is that of simple chronic albuminuria. The frequency of the occurrence of *phthisis* in cases of glucosuria is familiarly known. In all the autopsies the author has made, when the patient has not been cut off by an intercurrent affection, tubercles have been found in the lungs; and he feels convinced that many cases of phthisis have had their origin in a glucosuria that has been overlooked, and which might have easily been removed. In severe and old cases of glucosuria, *vision* is always found more or less enfeebled; but in most cases, when not of old date, as the condition of the patient has improved under appropriate regimen, this amaurosis has subsided. When, indeed, this is not the case, the prognosis of the glucosuria is serious; and it will often be found complicated with albuminuria. *Impotence*, more or less decided, is another effect of glucosuria; but in young subjects the generative functions resume their power when the original disease is rationally treated. Glucosuria may occur at any age, from infancy to senility; M. Bouchardat having met with most cases between forty and fifty. He has met with none between eighteen and twenty-five. Old age does not constitute an obstacle to cure; but so difficult is it to watch over children, that the author is not aware of a sustained cure prior to fifteen years of age. He has met with more male than female patients.—*British and Foreign Medico-Chirurgical Review*, January, 1853.

18. *Laws which influence the secretion of Sugar in Diabetes.* By Dr. MORITZ TRAUBE.—It has hitherto been thought sufficient to determine the quantity of sugar contained in the urine, either by analyzing that passed in the morning, or by extracting the saccharine matter from the entire amount evacuated during the twenty-four hours. There are, however, various circumstances in the diurnal life of the patient which may exercise a marked influence on this pathological secretion, the effects of which cannot be observed by following either of the above plans. Led by these considerations, Dr. Moritz Traube has in his researches pursued a method different from that adopted by other observers, and has thus obtained results which deserve to be briefly explained.

The patient on whom his observations were made was a young man of 28, who had for a short time laboured under diabetes. Of the ordinary symptoms of the disease, the best marked were the excretion of highly saccharine urine, extreme thirst, great increase of appetite, irregularity of the bowels, and disturbed sleep. Emaciation, however, had made but little progress, nor was there much perceptible dryness of skin. His regimen was so directed as to exclude as much as possible all amylaceous food. The urine was analyzed twenty-five times from the 1st to the 7th of January, and the following are the principal conclusions deduced by the author from his experiments: 1. The proportion of sugar contained in the urine was very different, according to the period of the day at which it was passed, varying from 225 grains to 26 grains in 100 cubic centimetres (39.3708 cubic inches, equal to 22 fluidounces and 6 drachms nearly). This fact proves how little can be inferred of the intensity of a case of diabetes from analyses conducted in the ordinary mode. 2. The quantity of sugar secreted was liable to remarkable oscillations—the maximum was 88 grains in the hour, the minimum rather more than 2½. 3. The amount of sugar was very sensibly augmented for a few hours after a hearty meal. 4. If the patient remained eleven hours without taking nourishment, it decreased so rapidly that during the last seven hours of this period a very insignificant quantity only could be found—less than 3 grains, for example, instead of upwards of a drachm, in the hour. 5. Usually, no sugar was excreted during the latter hours of the night; that is to say, at as long an interval as possible after a meal. 6. Almost all the sugar was derived from the meals, and disappeared after digestion was completed.

Five months subsequently, the patient, very much emaciated, and with greatly increased suffering, placed himself under the treatment by the Carlsbad water, and adopted a stricter regimen. The effect of this double plan was to produce a considerable improvement; his thirst and appetite were again re-

strained within nearly natural limits, and the excretion of urine was much diminished. Except that sugar was still proved to be present, the patient no longer presented any of the symptoms of diabetes. The analyses, repeated from the 26th June to 16th July, furnished the following results: 1. The proportion of sugar varied from 2 drachms to 17 grains in 100 cubic centimetres (22 fluidounces and 6 drachms, nearly) of urine. 2. The quantity of sugar excreted was greater than in the preceding experiments—the minimum being 24½ grains, the maximum rather more than three drachms. 3. It increased in proportion as the urine was examined nearer to a meal, and diminished according to the length of time which had elapsed after one; but no urine was now found, as formerly, free from sugar. 4. When a long time had elapsed without the patient having taken nourishment, the oscillations already described were no longer observed; the quantity remained stationary at about 45 grains. 5. There are two stages in diabetes: during the first, all the sugar contained in the urine is furnished directly by the ingesta; during the second, the sugar is not derived solely from the food, but is the result of a peculiar secretion of the liver. 6. In order to estimate the intensity of a diabetes, the urine must be analyzed in the morning, before a meal has been taken: if it is free from sugar, the disease is in the first stage; if it contains saccharine matter, the diabetes is in the second stage, and is advanced in proportion to the quantity of sugar voided in each hour. 7. As to treatment, the alkaline carbonates, administered in the form of Carlsbad water, while they modified certain symptoms, did not exercise any influence on the intensity of the disease.—*Dublin Quarterly Journ. Med. Sci.* Nov. 1852, from *Archiv. für Heilkunde, von Virchow. Nouvelle Encyclophonie des Sciences Médicales*, April, 1852.

19. *Character of the Pleuro-Pneumonia which has recently prevailed in London.* Dr. JAMES R. BENNETT relates (*Association Medical Journal*, Jan. 14, 1853), four cases of empyema opening through the bronchi, and gives some interesting information relative to the pleuro-pneumonia which has prevailed in London during the past eighteen months:—

The attention, he remarks, of most observers, must have been more or less arrested by the modifications which our treatment of local inflammation, and especially of pneumonia, has for some years been undergoing, especially in reference to the employment of bleeding. In this important remedy, the faith of many has been utterly shaken; nor has it fared better with antimony and mercury, in which many have been wont to place the most unlimited confidence. The dicta of Louis, in reference to the inefficacy of bleeding, except in the very earliest period of pneumonia, have not indeed been received in this country with unquestioning consent; but neither has the non-correspondence of his experience with that of British practitioners been satisfactorily explained. It cannot, I think, be doubted that, apart from varieties in what is called the epidemic constitution, there are important differences in the same disease, in so far as regards the constitutional symptoms by which it is manifested, dependent, perhaps, on climate, national constitutions, habits, modes of life, &c., as well as differences dependent on varieties of individual constitutions. All this, it may be said, is known and admitted; but is it sufficiently considered in practice? Is it sufficiently borne in mind, in estimating the statements and experience of observers situated in very different circumstances from our own? I am satisfied that much of the contrariety existing between French and British practitioners in reference to some of the more ordinary diseases, and the more common points of practice, is explicable by such considerations and by such alone. Thus, when going round the wards of the Hôtel Dieu last summer, with M. Louis, I observed several cases of erysipelas, and asked whether he found it necessary to employ stimuli to any extent in their treatment. I was struck by his answer, that he did not find it necessary to employ any treatment beyond rest and the most simple dietetic rules; for that in his experience idiopathic erysipelas was a very trifling disease, and never fatal, unless associated with some visceral disease or cachectic habit. Now this certainly is not the experience of our British hospitals; at all events, not of the London hospitals. Nor is it the experience of private practitioners in this country. It is

true that the majority of cases of idiopathic erysipelas do well, and that the disease manifests a strong natural tendency to cure, after running a specific course. But with us it is by no means a trifling ailment—it is essentially of an adynamic type, and requires a tonic treatment; more decided and vigorous, it may be, in some cases than in others. But whilst it is manifestly necessary to exercise much caution ere we adopt or reject the results of the experience of other observers, whether of our own or any other country, scarcely less caution is requisite either in following or discarding our own so-called experience. It appears to me that we are by no means warranted in inferring that, because bleeding and antimony are not found to answer so well in the treatment of pneumonia as we had been taught to believe, or as we formerly found them to do, therefore our former experience, or that of our predecessors, was fallacious. These remedies will, I believe, be found fully to warrant the confidence that was placed in them, when they are judiciously employed in the treatment of the same type of disease. We must, however, be sure that the same phenomena are present which former observers have pointed out as the indications for blood-letting. We are not justified in questioning the correctness of their therapeutic precepts, unless we have applied them and found them wanting, not merely in what we believe to be the same disease, pathologically speaking, but in the same disease attended by those phenomena which they depicted in no obscure or doubtful manner. Most unnecessary and unmerited discredit is thrown on our science, and especially on our art, therapeutics, by thus questioning or discarding the results of former experience, merely because they are not available for our present necessities. The arch enemy, the spirit of quackery, is ever ready to turn to good account, for his own purposes, such error. And still greater is the advantage given him when, from overweening confidence in established remedies, or inability to discover “the signs of the times” in reference to disease, there are found those who obstinately persist in the attempt to make disease accord with their treatment, rather than change their treatment with the disease. Doubtless much of what is called experience is fallacious; and we ought not, from unworthy fears of bringing discredit on our art, to shrink from abandoning error when once proved to be error. There has been no little craft displayed by the globulists in the selection of those acute diseases which they have made their stalking-horse; and nothing is more easy than the attempt to turn to the discredit of legitimate medicine, the difference of treatment pursued in diseases called by the same name.

True sthenic pneumonia of the croupous variety, *i. e.*, inflammation attacking the air-cells, and characterized by the effusion of plastic matter, by which these are obliterated, and which leads to solidification of the lung, which, on being cut into, presents the characteristic granular surface, arising from the filling of the cells with solid lymph, has become a comparatively rare disease of late. The ordinary received descriptions of this disease are, however, true to nature; and there would not, perhaps, on close examination, be found to be much difference of opinion among experienced judicious practitioners, as to the treatment of such disease. For my own part, in proportion as I found a given case of such disease to correspond in its constitutional phenomena with those which the writers of the time of Cullen, and even much subsequently, described as indicating the necessity for bloodletting, I should with them consider it as the “*remedium magnum*,” and employ it with as much confidence as they did. The pleuritis which accompanies this form of pneumonia is, for the most part, attended simply by the effusion of plastic matter, adhering to the two sides of the serous membrane, and unassociated with much fluid. And the pleuritis itself is quite a subsidiary and secondary disease, the mere result of the extension of the inflammation from its contiguous seat in the lung itself. The pleuropneumonia thus constituted, partakes of the same general character as the simple pneumonia.

In all these, as well as in other important respects, the inflammatory disease which has of late prevailed, and of which I have detailed several examples, differs considerably. It differs both in the character of the attendant constitutional symptoms, of the structural changes; and the treatment demanded. It is not, however, what has been generally understood as typhoid pneumonia.

Certainly it is not always, nor generally, associated with either typhus or typhoid fever. It is, for the most part, unaccompanied either with any specific form of eruption, or evidence of contagion. In many instances the pleuritis has been the earliest of the two affections, in the order of occurrence, and in most, the more prominent affection. In some cases the disease has begun with catarrhal symptoms, subsequently passing into pneumonia or broncho-pneumonia, concurrent with the supervention of pleurisy. The pain has been frequently great, and a very prominent symptom; and effusion has taken place rapidly and to a great extent, assuming, I think, very early, a purulent character. Cough has not been either a troublesome or prominent symptom. The sputum at some period, sometimes earlier and sometimes later, has almost always indicated that the substance of the lung and the air-cells were involved in the inflammatory action. It has not, indeed, presented the ordinary characters of the brick-dust or rusty sputum of the sthenic pneumonia, expectorated in small masses of extreme viscosity; but it has always been more or less tenacious and glairy, sometimes streaked with blood, and at other times presenting the appearance of prune-juice, or of a dirty greenish-yellow colour, and copious in quantity. It has varied also in the same case from day to day—at one time being free from sanguineous impregnation, having the appearance of simple viscid bronchial secretion, and the next day, perhaps, being more of a bistre colour. The dyspnoea has not usually been urgent, nor the respiration at all laboured, but for the most part of increased frequency. In most cases the skin and tongue have been moist, the former clammy, and the latter loaded with a dirty creamy fur—sometimes, however, dry and brown. The pulse, generally rapid, has usually been soft, sometimes very feeble—the urine, sometimes high-coloured and scanty, in other cases has been copious and of a pale straw colour. In short, the constitutional symptoms have not been those indicative of excited action of the vascular system; so far from it, that, judging by the skin and pulse alone, it might frequently be inferred that little or no fever was present. I have seen, in some instances, even where the greater portion of one lung was manifestly involved in the inflammatory action, but little if any appreciable excitement of pulse or difficulty of respiration.

The physical signs have shown that the inflammatory action has spread rapidly over a large extent of surface, although generally confined to one side. It is also deserving of special attention, that the upper lobes are much more frequently implicated than is observed in the ordinary sthenic pneumonia. The amount of solidification of the lung that ultimately results, is not, however, always correspondingly great, or, at all events, is not very complete; nor is it so permanent; that is, the lung sooner returns to a condition in which it is more or less permeable to air. It has appeared to me to be checked in a measure by the pleuritic effusion as this becomes copious; the ordinary result of copious pleuritic effusions ensuing—compression rather than enlargement and solidification from effusion of solid matter in the substance of the lung. Where the amount of pleural effusion has been less, and the pneumonitis has pursued its own course, uninfluenced by external pressure, suppurative infiltration of the lung has often supervened, without much complete preceding solidification. This state of lung, as was manifest in the case of Maroney, shows a tendency to gangrenous destruction; and one of the chief points of interest in the *post-mortem* history of Maroney's case, is the small amount of solidification that was found, notwithstanding the extent of lung involved. It was only in the immediate vicinity of the gangrenous cavities that the lung was impervious to air and non-crepitant. Indeed, it seemed pretty clear that the case proved fatal, not so much from the extent of lung originally involved in the inflammatory action, as from its character and the consequent gangrene. The suppurative tendency is still more marked in the pleural cavity. This tendency to suppuration, breaking down, and gangrene of the tissues, probably accounts for the particular termination of the cases detailed; at least, in two of them. In the case of the gentleman first detailed, I believe the principal accumulation of pus was interlobar, and that, as the acute stage subsided, the effusion in the general cavity of the pleura was, for the most part, absorbed; whilst a considerable collection still remained pent up between the lobes of the lung and its

root; so that, when, at length, the matter obtained exit, the outlet was very direct, opening immediately, or nearly so, into the larger bronchial trunks. Thus, the discharge was sudden, rapid, effectual, and uninterrupted till the whole was expectorated. The sides of the cavity would thus be brought more readily into apposition, and its obliteration effected. The steady, rapid progress towards cure of this case, after the discharge of the matter, independent of the physical indications, shows, I think, how little true solidification of the lung there had been.

The absence of the signs of pneumothorax (except in the case of Connor, where the indications of a circumscribed pneumothorax were well marked) is a point of great interest in all the cases detailed. This circumstance may perhaps excite doubts in the minds of some, whether there were really any communication with the bronchi. But I know not in what other way we are to explain the sudden removal of the pleuritic effusion, and the circumstances attending that removal. In the first case detailed, there cannot be the least doubt that a very large accumulation of fluid obtained sudden exit by the bronchi, so as for a time to place the life of the patient in extreme jeopardy. In the last case, the sudden discharge of a small quantity of fetid, gangrenous matter, succeeded by more copious purulent expectoration, was immediately followed by marked changes in the physical signs, which indicated the rapid disappearance of an accumulation of fluid in the pleura. Whether, in this and the other cases, the absence of all signs of the presence of air in the pleural cavity is to be ascribed to the existence of extensive adhesions, or to any peculiarities of the communication with the bronchi, I am unable to say.

Such are the more important features of the thoracic inflammation, to which I venture to call the attention of the profession; and they are sufficient, I think, to show that it differs, in many most material respects, from the ordinary form of either pneumonia or pleuritis. Upon what does this difference depend? Not, I think, merely on peculiarities of individual constitutions. I have seen the disease in various constitutions, and in persons moving in very different social spheres. It has no necessary connection with any form of continued fever. Is it connected with erysipelas? I am disposed to think that it is; not that it is generally associated with the external manifestation of erysipelas. The pneumonia that is associated with fever, erysipelas, and cachectic states of system generally, it is well known, is usually of the asthenic type; but I am disposed to regard the pleuro-pneumonia now under discussion as itself a form of erysipelatous disease, and for these, among other reasons: 1st. In its pathological features, it closely resembles erysipelatous inflammation; 2d. It has prevailed contemporaneously with external erysipelas; 3d. An erysipelatous form of cynanche has been very common, and, in many cases, has been an attendant on the thoracic inflammation; sore-throat having been frequently complained of in the beginning, and, as this has subsided, bronchial symptoms have occurred, to which the pneumonia and pleuritis have succeeded. I feel, however, bound to admit that it differs in some material respects from the ordinary forms under which erysipelatous inflammation of internal organs has hitherto been known to us.

In respect to the treatment of this disease, it is manifest that it must differ materially from that of the ordinary forms either of pneumonia or pleuritis. General bleeding is rarely if ever admissible; I have never employed it. Local depletion, to a limited extent, especially in the early stages, is sometimes decidedly useful, especially from the relief it affords to the pain and the congested state of the parts implicated. Counter-irritation may be more early employed than is desirable in the more sthenic forms. Blisters, indeed, I have found of the most marked benefit, and have been in the habit of repeating them frequently. Calomel and antimony, if used at all, must be very cautiously and sparingly employed. Dover's powder, in doses of five grains, with a grain of calomel, three or four times a day, has appeared to me very useful. But I have not given the calomel with the view of affecting the system, so as to induce any of the symptoms of mercurialization. Ammonia has proved the best expectorant; and this I have given usually with the acetate of ammonia, sometimes with the camphor mixture, and at other times with serpentaria or senega.

In almost all cases, I have allowed the patients beef-tea, and very frequently found a certain portion of wine to be necessary. But under any plan of treatment, the affection is attended by great danger, and, in its worst forms, very fatal. So rapid has been the progress in many cases, so great the prostration, even with the most cautious treatment, that I have, in more than one case, been led to doubt whether the patient would not have had a better prospect by entire abstinence from all antiphlogistic treatment, so called, and the use of stimuli alone *ab initio*. Ample and efficient blisters, with wine, beef-tea, and ammonia, are, I believe, the remedies on which most reliance should be placed in the most aggravated and most characteristic examples of the disease. But such remedies must be used cautiously. Many cases will do well with little or no treatment, even though, as ascertained by the physical signs, there be a considerable amount of inflammation; a simple diet, not too antiphlogistic; rest, and an open state of the bowels, with some counter-irritation, being all that are requisite; anything beyond this, like the homœopathic globules, serving only to amuse the patient, and gain for physic a degree of credit which is not its due.

20. *Angina Pectoris*.—[Dr. O'B. BELLINGHAM communicated to the Surgical Society of Ireland (Jan. 15, 1853) a case of angina pectoris, and offered the following theory in relation to this affection, which is worthy of consideration:] Angina pectoris has been heretofore always described as a distinct disease. The earlier writers upon the subject supposed it to have some mysterious connection with ossification of the coronary arteries; others, that it depended on excessive deposition of fat upon the heart. Modern pathologists having failed not unfrequently to discover either of these morbid changes, and seeing the suddenness with which it supervenes and subsides, refer it to *spasm* of the heart; while others, again, looking more to the character and intensity of the pain, regard it rather as a form of *neuralgia*, and describe it under the name "*Neuralgia of the Heart*."

I do not think sufficient evidence has been adduced to entitle angina pectoris to be regarded as a distinct disease; neither do I think it necessary to call in the aid of spasm or neuralgia, when there are circumstances in its clinical history and pathology which seem to be quite capable of explaining all its phenomena independent of either. Thus, angina, in a well-marked form, is not seen except in cases of organic disease of the heart; and as a general rule, it is not observed even in these, unless something occurs either to disturb the action of the heart, or to hurry the circulation.

The *immediate cause* of angina pectoris appears to me to be a sudden impediment to the *coronary* circulation, particularly to the return of the blood by the coronary veins, itself in general the result of a temporarily over-distended state of the chambers of the heart, and an inability in them to empty themselves, whether owing to weakness of the muscular tissue of the parietes of the left ventricle, or to other causes. For instance, if the cavity of the left ventricle is considerably dilated, or its walls are attenuated, or softened, or have undergone fatty degeneration, the contractile power of its muscular tissue will be impaired in proportion; and if the circulation happens to be suddenly hurried, or the heart's action to be suddenly disturbed, the cavity of this ventricle might become so much distended as to be unable to contract upon its contents, which would be immediately followed by distension of the auricle on that side, and if relief is not quickly experienced by distension of the right chambers of the heart.

It is scarcely necessary to say, that in a normal state of the circulation, all the chambers of the heart are never full of blood at the same moment. When the ventricles are filled, the auricles are comparatively unfilled, and *vice versa*. Here, however, we would have a suddenly distended state of the chambers on both sides of the heart at the same moment. From the position of the coronary vessels in the grooves of the heart, they cannot, we know, suffer compression during the alternate movements of the ventricles and auricles; but if the auricle and ventricle upon each side of the heart are distended at the same time, these vessels, but particularly the veins, must suffer compression, by which

their circulation will be impeded; and the great coronary vein, in addition, may be prevented from freely emptying its contents into the right auricle, in consequence of the distended state of this cavity.

We know, likewise, that the normal capacity of the pericardial sac is but little greater than that of the heart in its ordinary state of distension; and that this membrane is composed of tissue which does not *suddenly* yield. The parietes of the heart would, therefore, under the circumstances that I have described, be placed between two compressing forces—an undue amount of blood in the chambers of the organ, and the unyielding pericardium upon the outside. The effect of this compression of the heart's tissue would necessarily be to impede still further the coronary circulation, and to clog still more the movements of the organ, and the condition of the heart would be somewhat analogous to that in which a large amount of fluid was *suddenly* effused into the pericardial sac, from rupture of a vessel or other cause.

The organic lesions of the heart most likely to be attended with angina would, therefore, be a condition of the aortic valves permitting free regurgitation, with a rigid, dilated state of the ascending portion of the arch of the aorta, which permits the blood from the large vessels to regurgitate into it, combined with either—

1. Dilatation of the cavity of the left ventricle; or,
2. Attenuation of the parietes of the left ventricle; or,
3. Softening or fatty degeneration of the muscular tissue of this ventricle.

For instance, when the aortic valves permit free regurgitation, there is at each ventricular diastole a reflux of blood from the aorta into the ventricle at the same time that the current is entering it from the auricle; the left ventricle consequently is unable to empty itself, the state of distension in which it is kept leads to permanent dilatation of its cavity, which tends still further to embarrass the circulation by enfeebling the ventricle, and diminishing its power of expelling its contents.

It has been shown by Hales, that "each square inch of the surface of the interior of the ventricles has a pressure upon it during the systole equal to about four pounds," and, "as the resistance which the heart has to overcome in contracting, is, according to hydrostatic laws, in proportion to the extent of the inner surface of the cavity at the commencement of the systole," if the cavity of the ventricle is dilated, more force will be required to enable the ventricle to expel its contents; and the greater the amount of the dilatation the less able will the ventricle be to overcome the resistance. In such a state of the aortic valves, and in such a condition of the ventricular cavity, if the parietes of the left ventricle are, in addition, attenuated or softened, the ventricle will be still less capable of overcoming the resistance, and a very trifling muscular exertion, or a sudden mental emotion, may lead to over distension of its cavity, followed by distension of the other chambers of the heart. If, at the same time, the arch of the aorta is dilated, and its coats are rigid and inelastic, permitting the blood from the large arteries which come off from the arch to regurgitate into it, the coronary circulation will be necessarily greatly impeded, and a paroxysm of angina will be the result.

Any one of the foregoing morbid conditions of the heart may be present, or two or more of them may be combined, without angina necessarily occurring; indeed, as long as the circulation continues tranquil, and as long as the left ventricle is able to get rid of the blood which enters its cavity, the latter cannot become over-distended. If, however, the heart's action is disturbed by some sudden mental emotion, or other cause; or even without this occurring, if the stomach is loaded with indigestible food, and it and the intestines are distended with flatus, by which the cavity of the chest is encroached upon, and the heart's movements are impeded, a paroxysm of angina may be the result. Hence, in persons who have had previous attacks, it is liable to supervene during sleep, when it may be the result of a frightful dream, disturbing the heart's action; or of considerable distension of the stomach by flatus, impeding the movements of the organ.

Dr. Forbes,¹ in his able article on the subject, has shown that *plethora* is a

¹ Cyclopædia of Practical Medicine.

very common complication of angina; a state which, if combined with a weak heart, would give a further predisposition to the attack. Thus, "the subjects of angina (Dr. Forbes observes) are mostly of the male sex, above fifty years of age, and a great majority of them belong to that class of persons who are enabled to indulge in full living, without the necessity of undergoing severe bodily labour." Again, "gout is a very frequent disease in persons subject to angina, and obesity is extremely common." "The very existence, too, of angina tends (he adds) to produce plethora if it did not previously exist; a sedentary life and abandonment of all active bodily exertions, are almost inevitable consequences of the disease."

It may, perhaps, be objected that the foregoing explanation of the cause of angina is insufficient to account for the peculiar pain which accompanies a paroxysm. I cannot, however, imagine any state more likely to be attended by intense distress, anxiety, and suffering, with a sensation of impending dissolution, than such as I have described, where the chambers of the heart are immoderately distended, the coronary circulation temporarily obstructed, the heart's movements clogged or impeded, or its muscular tissue compressed.

Angina pectoris, in its most marked form, is almost peculiar to advanced life; thus, of 84 cases recorded by Dr. Forbes, 72 were above fifty years of age, and only 12 under that age. The reason of this is sufficiently obvious; the morbid conditions upon which it depends are, in some measure, limited to advanced life. Again, when a person has been once the subject of angina, subsequent attacks are very likely to ensue if the exciting causes come into operation, because the diseased states on which it depends are irremediable. Lastly, angina is rare in the female compared with the male, because the diseased state of the aorta so frequently associated with it, is very seldom met with in the female; indeed, regurgitant disease of the aortic valves itself, is less frequent in the female than the male.

In conclusion, then, I would say, that angina pectoris ought to be regarded rather as a *symptom* of organic disease of the heart than as a distinct form of disease; in fact, what dyspnoea is to the lungs, angina appears to be to the heart, and it might without impropriety be termed the *dyspnoea of the heart*. Thus both are met with in very variable degrees of intensity; both have sometimes apparently almost purely a spasmodic character, and both are often the result of mechanical causes—in the one case, of some impediment to the free passage of air into or out of the lungs; in the other, of an impediment to the circulation in and through the heart. It would, indeed, in my mind, be almost as absurd to class dyspnoea apart, and describe it as a distinct affection, as it is to make angina a separate disease. As dyspnoea may arise under variable and opposite states of pulmonary disease, so angina may ensue in different forms of cardiac disease. We can, likewise, easily understand, from what precedes, that if the paroxysm of angina is slight, it may pass off spontaneously, or under the influence of stimulants and other appropriate measures, the heart may be enabled to get rid of the blood which distends its cavities; while, if the paroxysm is severe and continued, complete arrest of the coronary circulation may ensue, followed necessarily by cessation of the heart's action and the death of the patient.

The conclusions which I would draw from what precedes, are—

1. That angina pectoris is to be regarded as a symptom of disease of the heart, not as a distinct affection.
2. That it does not occur except where organic disease of the heart, generally of long standing, exists.
3. That its connection with spasm, or neuralgia, is more than doubtful.
4. That its probable cause lies in impediment to the coronary circulation, particularly to the return of the blood by the coronary veins.
5. That the diseased states of the heart in which it is most liable to ensue, are a condition of the aortic valves permitting free regurgitation, with a rigid dilated state of the ascending portion of the arch of the aorta, combined with either dilatation of the cavity, or attenuation, or softening of the parietes of the left ventricle.
6. That, even in these diseased states, angina may not occur unless the

heart's action is suddenly disturbed, or its movements are clogged, or impeded by some mechanical cause.—*Dublin Medical Press*, Feb. 9, 1853.

21. *Affections of the Bronchial Mucous Membrane in Chronic Renal Disease.* By GEO. BURROWS, M.D., and W. SENHOUSE KIRKES.—In the course of chronic disease of the kidneys, the several great mucous and serous membranes are exceedingly prone to become seriously affected. The affection of the mucous membranes is manifested in various disturbances of their ordinary functions, and occasionally in an inflammatory process of a more or less severe and protracted kind, attended usually with a copious discharge from their surface. The affection of the serous membranes consists chiefly in the accumulation of fluid within their cavity, and occasionally in a low but often fatal inflammatory process. There seems to be sufficient reason for believing that the affections of the mucous and serous membranes, as well as many other secondary complications occurring in the course of chronic renal disease, are due, in great measure, to the disordered state of the blood which the structural affection of the kidneys engenders; for, in nearly all confirmed cases of renal disease, the respiratory and gastro-intestinal mucous membranes present signs of being more or less disordered, and the tendency to effusions and inflammations within the different serous cavities is more or less strikingly manifested. The affection of the respiratory mucous membrane is shown in the almost habitual catarrh to which the victims of renal disease are subject; that of the alimentary mucous membrane in the nausea, vomiting, and disordered bowels so common in this disease; and, when the disorder of either of these great mucous membranes runs on to inflammation, the profuse discharge which in such case often takes place from the affected surface may with reason be considered to result from a natural effort to remove in this way from the system certain injurious materials which, in consequence of the disease of a great excreting organ, have accumulated within the blood. For, although the mere process of discharge may be productive of serious distress and debility, yet it not unfrequently happens that, after such free secretion from a mucous surface, the dropsical effusion which previously existed becomes greatly diminished, and various cerebral and other symptoms, indicative of the circulation of urea in the blood, subside or are removed. And it seems likely enough that the relief in such cases is due to the elimination of some of the morbid materials of the blood along the mucous surface from which the free discharge has taken place. The probable correctness of such an opinion is supported by the almost constant disorder of the gastro-intestinal mucous membrane, manifested in nausea, and vomiting, and profuse diarrhoea, which ensues when, from accident or experiment, any noxious organic materials are received into the blood. Examples of this occur after the absorption of foul gases, or the injection of putrid matters into the bloodvessels of animals, also in puerperal fever with uterine phlebitis, and in the typhoid or extreme hectic condition when gangrene is going on. That the affection of the mucous surfaces in chronic renal disease is dependent on the permanently abiding disorder of the blood, and not on a mere temporary or accidental cause occurring in the course of the disease, is made probable, too, by the very obstinate and protracted nature of the mucous affection, by its liability to relapse independent of ordinary exciting causes, and by its frequent persistence in a chronic form long after the violence of its first attack has been subdued. Chronic catarrh and chronic diarrhoea, with occasional vomiting, are noted among the most common and troublesome of the secondary affections of renal disease, and their obstinacy and intractableness are probably in great measure due to the fact that the cause which gave rise to them is of a permanent and not a transitory kind, and dependent on a general morbid condition of the blood, and not on any circumstance acting only locally and temporarily on the affected membrane.

The constant discharges which in some cases take place from the bronchial and intestinal mucous surfaces, do not usually leave any structural changes discoverable in these membranes after death, but occasionally, there is distinct evidence of ulceration of the intestinal mucous membrane, usually of a dysenteric kind, and affecting the large intestine. It may admit of question whether the dysenteric ulceration in such cases is a mere accidental complica-

tion, independent of the primary disease of the kidneys, or, as seems more probable, results from the direct irritation of an unusual and probably acrid secretion continually eliminated from the affected surface.

It is not common for both of the great mucous membranes to be simultaneously affected to any considerable extent in renal disease; for although each of them is usually somewhat disordered, yet, generally speaking, the principal mischief is limited to one, and rarely leaves it to attack the other. Thus, when the brunt of the affection falls upon the bronchial mucous membrane, it is unusual for it to leave this surface and attack that of the alimentary canal; and the same persistence of the affection in the membrane first attacked is observed when the alimentary mucous tract is the main seat of the secondary affection. When either mucous membrane is seriously affected, and free discharge takes place from its surface, it usually happens that the tendency of the disease to kill by dropsy or cerebral disorder is kept in abeyance, though death not unfrequently arrives in consequence of the prolonged distress and exhaustion resulting from the perpetual drain from the affected mucous surface and the attendant disorder of its own proper function as a respiratory or alimentary organ. It may be observed, too, that affections of the mucous membranes, especially of the respiratory tract, are not limited to any particular stage of the disease, being as common in a first attack of febrile dropsy, or dropsy after scarlet fever, as when the disease is thoroughly confirmed, or advanced to its last stages.—*Medical Times and Gazette*, January 1, 1853.

22. *Cirrhosis of the Liver*.—M. MONNERET, believing that the term cirrhosis has been applied to very different pathological conditions, endeavours in these papers to speak of it with some precision, while relating the cases of the disease which have come under his own observation. He defines cirrhosis as a chronic and apyretic affection of the liver, characterized by more or less impediments to the hepatic portal circulation, which leads to peritoneal effusion, dilatation of the collateral veins, and often to œdema of the extremities, and hemorrhages from the various mucous surfaces.

The anatomical changes which almost always accompany these symptoms are induration and atrophy of the entire tissue of the gland, or of its vascular portion, with the yellow change of tissue, whether granular or not. The retraction of the hepatic substance gives rise to the diminished size of the organ, and at the same time that the portal veins become less visible, the yellow portion continues to predominate over the other, until it entirely supersedes it. The thickening of Glisson's capsule and the serous layer that lines the liver completes the anatomical character.

M. Monneret's memoir is based upon twenty-four cases, in fourteen of which autopsies were performed, this being the entire number of cases he has been able to meet with during the ten years his attention has been directed to the subject. He has compared these cases with forty others of the various lesions of the organ, as also with fifty cases of disease of the heart, in which the condition of the liver was examined.

He has taken great pains in the measurement of the liver, by means of plesimetry, having accurately measured in this way 100 patients. In a healthy man lying in the horizontal position, the hepatic dulness commences four centimetres (about $1\frac{1}{2}$ inch) below the right nipple, and terminates at the edge of the ribs, which forms a tolerably exact natural inferior boundary. At the medium line, it is placed behind the scaphoid cartilage, passing a little towards the upper part of the epigastrium. Posteriorly and laterally it ceases at the level of the ribs. The following figures indicate the normal distances which separate the upper line of hepatic dulness from the level of the ribs: In thirty-one cases its mean height at the median line was 5.62 centimetres; its minimum 1.5, and its maximum 9.5. To the right nipple the mean was 12.64 centimetres, the minimum 7.8, and the maximum 18. In the axillary region, the mean was 10.57, the minimum 7.3, and the maximum 13. In the scapular region, the mean was 9.11, the maximum 14. In twenty-five cases the hepatic dulness commenced at four centimetres below the nipple. The thoracic vibration, perceptible to the hand, while the patient counts with a loud voice, extends three

or four centimetres below the upper limit of hepatic dulness. In cirrhosis, the normal limits of hepatic dulness have never been found exceeded. In some cases they are scarcely diminished, while in nine have they been so by more than five centimetres. The meteoric state of the intestines renders exploration sometimes difficult by pressing the liver into the thoracic cavity; but when authors speak of hepatic hypertrophy they confound other lesions with cirrhosis.

The *peritoneal effusion* is of very slow occurrence, fluctuation long continuing obscure, and the patient often not being aware of tumefaction of the abdomen. The progress of the dropsy is gradual, and there is not observed those alternations of increase and diminution seen in dropsy arising from hepatic congestion, whether connected with disease of the heart or other lesions. The fact of the dropsy becoming established before anasarca of the extremities, has been too much generalized. The integuments of the abdomen becoming infiltrated sooner than can be explained by the abdominal distension is explicable by the obstruction to the venous circulation.

In like manner, the *dilatation of the veins* of the abdominal and thoracic parietes may become considerable before any notable effusion occurs. The most delicate *capillaries* undergo dilatation, so that their elegant arborescence becomes perfectly visible, and that by no means always when distension is greatest. These facts are explicable by the obstructed state of the portal circulation. In some cases, however, no such dilatation and inosculation of veins is present, ascites existing alone. In this point of view, it is interesting to remark that in five out of ten of Dr. Hillaret's cases of portal phlebitis there was no effusion. It is probable that in some of these, as well as in some of the cases of cirrhosis, the obstruction has only been partial, and hence the absence of some of the usual symptoms.

Not only, however, is the hepatic circulation thus disturbed in cirrhosis, but in all probability the *composition of the blood* has undergone change, giving rise to the *hemorrhages* which are of such frequent occurrence. Epistaxis, slight in quantity, is the form that M. Monneret has usually met with; in some cases the stools have been tinged with blood.

We cannot abstract the details of the eleven *autopsies* M. Monneret furnishes an account of; but may advert to his summary of the most common lesions. 1. The liver is sometimes diminished by a third or one half its size. 2. Its surface presents more or less prominent lobules, separated by whitish furrows, the normal disposition of the hepatic structure being exaggerated. 3. The capsule of Glisson is thickened, whitish or opaque, more close and resisting, and intimately adherent. 4. This capsule is found in a hypertrophied state, in the interior of the parenchyma, as whitish lines, inclosing the hepatic lobules and sometimes yellow granules. 5. The change in the proportion of the two substances of the liver has long been admitted as a characteristic of cirrhosis; but while acknowledging the convenience of the expressions red or vascular, and yellow or bilious portions, and believing the affection is one which obstructs the circulation in the vena porta, Monneret doubts the correctness of these anatomical statements. M. Lereboullet believes in the conversion of the bilious into fatty cells, and Monneret has always found by the microscope that a large quantity of fat incrusts the biliary cells. He believes, however, that this fatty transformation itself is dependent upon the atrophy of some element of the parenchyma. 6. The extreme frequency of peri-hepatic peritonitis is of importance in the anatomical history of cirrhosis; for it may be asked whether this phlegmasia induces induration of the proper membrane of the liver, the loss of extensibility of which may be the cause of the hepatic retraction. 7. The degree of induration of the liver varies, being in some cases comparable to scirrhus, and apparently due to the predominance of the cellulo-fibrous portion. 8. There is great dryness of tissue from paucity of blood. 9. The alteration may occupy an entire lobe or even the entire organ; but it may do this in very different degrees. 10. As a negative character worthy of note, it may be mentioned that there are no lesions of the bile-ducts, and the bile is apparently normal. 11. In several cases a new circulation has been found established in the fibro-cellular partitions of the lobules, a brilliant arterial network being dis-

tinctly visible. This may be regarded as a supplementary circulation of the hepatic artery, it having been observed in cases in which the vena porta was entirely or partially obstructed.

In respect to the *causes* of this affection, the habitual excessive use of alcohol is undoubtedly one; but in other cases bad and insufficient diet is alone discoverable. These circumstances explain the frequency of disease of the alimentary canal, which is observed in cirrhosis. The frequency with which inflammatory disease of the liver has preceded this condition is undoubted; but whether the thickened state of the capsule be an extension of this, or one of the lesions accompanying organic atrophy, is doubtful. Inflammation is not essential, as in certain cases it has not prevailed. The congestions of the liver which are so frequently seen in disease of the heart are not, as has been stated, first stages of this affection. Their effect is to lead to dilatation of vessels, while cirrhosis leads to their obliteration. In cirrhosis, the yellow secreting tissue, formed of biliary cells, and yellow granules, is not hypertrophied, and only becomes more visible and prominent from the atrophy of the portal and vascular system. In hypertrophy, the functional activity gives rise to jaundice, but not to obstruction of the circulation; while in active congestion and phlegmasia, even when slight, characteristic symptoms are present, as increase in size, tenderness, irregular fever, fibrinous blood, and icteric urine.

For the *treatment* of so fatal a disease, M. Monneret has little to recommend. At least temporary benefit is sometimes derivable from alterative doses of blue pill, combined with Vichy or soda water, and alkaline or sulphurous baths. The diarrhoea and vomiting so obstinate in some of these cases are best treated by large doses of bismuth.—*British and Foreign Medico-Chirurgical Review*, January, 1853, from *Archives Générales*, tom. xxix. & xxx.

23. *New Researches in Hematology.*—In our last No., p. 215, will be found the conclusions drawn by MM. BECQUEREL and RODIER from their examinations into the changes produced in the blood in various diseased states, and which they presented in a memoir read before the Academy of Sciences in Paris, on May 31, 1852. We shall now present some of the details of these researches.

The diseases which come under notice in the first part of their memoir are, 1. Anæmia and chlorosis; 2. Bright's disease; 3. Dropsies which appear connected with an alteration in the blood; 4. Organic diseases of the heart; 5. Scurvy. In the second part, they propose to examine the modifications which the blood undergoes: 1, in the phlegmasia; 2, in puerperal diseases; 3, in diseases of the brain; 4, in some other acute diseases.

Anæmia and Chlorosis.—In anæmia, the specific gravity of the blood is low (average 1049.93); the red corpuscles are diminished (100.13 instead of 128); the solid constituents of the serum are not changed; the fibrine is increased (3.72 instead of 3). These results were arrived at from the examination of ten individuals. In chlorosis, the quantity of globules was found to vary, in six cases, from 45 per 100 to 109; the fibrine varied from 3.06 to 5.01; albumen was present in its normal proportions.

MM. Becquerel and Rodier lay much stress on the distinction between anæmia and chlorosis. They consider this subject under the head of: 1, causes; 2, mode of development; 3, symptoms; 4, physical signs; 5, composition of the blood; 6, progress and duration of the disease; 7, treatment. The principal distinctive features are the following:—

Chlorosis appears gradually, without apparent relation to any cause; anæmia is the immediate result of some debilitating influence. In chlorosis, nervous symptoms predominate; the skin is of a yellowish-green tint; disturbance of the catamenial function is almost always present: in anæmia, the nervous symptoms are secondary, and principally consist in debility and lassitude; perverted sensations are rare, and, when they occur, are less intense than in chlorosis; menstrual disorders may be entirely absent (putting aside anæmia resulting from uterine disease); the loss of colour in the skin is not generally accompanied by the yellowish-green tint. In chlorosis, there is often a murmur at the base of the heart, accompanying the first sound, and heard along

the aorta; this is often absent; but, in anæmia, it is always present. In chlorosis, the venous murmur is more frequent than in anæmia; and musical bruits are much less frequently heard in anæmia than in chlorosis. In chlorosis, the composition of the blood may not be materially changed; and when it is, it may not be in proportion to the symptoms: in anæmia, the change in the blood is constant, and the intensity of the symptoms is in direct relation with such change. In chlorosis, the quantity of fibrine is generally increased; in anæmia, it is diminished. Chlorosis, when left to itself, is often of long duration; anæmia tends to recovery when the cause is removed. In chlorosis, the principal indication is to give chalybeates; and the secondary indications are, to act on the mental feelings, and to attend to the influences of dwelling, aeration, and food. In anæmia, the principal indication is the removal or diminution of the cause, whenever this is possible: hygienic treatment is next in importance; while quinine and iron are less likely (except when the anæmia results from hemorrhage) to be of service than in chlorosis.

Bright's Disease.—In the acute stages (acute congestion of the kidney), MM. Becquerel and Rodier have examined the blood of fifteen persons. The quantity of albumen is diminished, more so as the disease advances; and the specific gravity of the blood decreases in proportion. The extractive and fatty matters are somewhat increased; milky serum was found in two of the cases. This state of the serum they believe not to be due to fat, but to a peculiar condition of the albumen.

In the treatment, general and local bleeding were employed successfully in most of the cases; diuretics are hurtful, by increasing the renal congestion. Vapour-baths seem useful in removing the consecutive dropsy; and cinchona, with a nitrogenous diet, will give strength to the impoverished serum. Chalybeates are perfectly useless.

In the chronic form of Bright's disease, the specific gravity of the blood is lowered from 1060 to 1045.6; the red corpuscles are also diminished; while the fibrine is increased: the albumen is much diminished.

Dropsies.—These may depend either on obstacles to the circulation, in which case, there is no necessary change in the blood; or they may arise from a diminution of albumen in the blood. The latter form may be divided into two groups, *cachectic dropsies*, arising from Bright's disease, insufficient food, long-continued losses of blood, as from hemorrhoids, and chronic diarrhœa, cancerous cachexia, and paludal cachexia; and *acute dropsies*, as from suddenly suppressed menstruation, scarlatina, prolonged chills, sleeping on the ground, etc.

In the treatment of cachectic dropsy, the first indication is to remove the cause, when possible. Hemorrhages, fluxes, and diarrhœa may be arrested, or even cured; want of food may be repaired; privations and unhealthy dwellings may be remedied. But in some cases, the removal of the cause is more difficult; for instance, in paludal cachexia, the patient must be withdrawn from the malarious influence, and its effects must be counteracted. Sometimes the cause of the dropsy cannot be removed, as when hemorrhage depends on an organic disease—cancer, for instance.

Cinchona in various forms, and bitter tonics, especially gentian, are most useful; iron is also indicated when there is much loss of colour, and when there are vascular bruits, or when analysis has directly shown a diminution of red particles in the blood. The use of tonics must be continued for some time. Stimulant frictions may be employed; they tend to favour the absorption of the effused fluid in the subcutaneous cellular tissue. If it becomes necessary to treat the dropsy in a direct manner, purgatives are too debilitating; diuretics are not trustworthy: but vapour-baths may be had recourse to with benefit. The hygienic treatment consists in a generous diet, warm clothing, moderate exercise, and habitation in a mild climate. In acute dropsy, if albumen be found in the urine, and there are febrile symptoms, general bleeding almost always reduces the quantity of albumen, and arrests the course of the dropsy. The application of leeches or cupping-glasses to the region of the kidneys is also sometimes of service. To remove the dropsy, purgatives may be used with less inconvenience than in the cachectic form; but dry vapour-baths are preferable. Diuretics are objectionable; stimulant frictions may be employed with

benefit. To raise the quantity of albumen, cinchona and bitters are often useful; but, as the diminution of albumen is not so great as in cachectic dropsies, the proper employment of hygienic measures is almost always sufficient to bring it back to its normal proportion.—*Gaz. Méd. de Paris*, June, 1852.

24. *Coexistence of Cancer and Tubercle*.—DRS. JENNER and BRINTON, in a report made to the Pathological Society of London, made the following references to pathological authorities to show the compatibility of cancer and tubercle. Seven undoubted cases in which these deposits were found conjoined in the same subject are published by Dr. Walshe. Dr. Hughes Bennett has not seen or heard of a well-authenticated case in which recent tubercle and cancer were associated; but he observes, that "instances are common where individuals have tubercles in youth, and cancer in adult age." In 153 bodies affected with cancer, Lebert found 17 whose organs exhibited tubercle associated therewith. The same author has published in "Virchow's Archives," for the present year, among other cases of cancer, one in which colloid cancer of the pylorus and tubercles of the lungs were coexistent. Lebert seems to believe that tubercle may be developed in individuals already suffering from cancer, but he has met with no instance in which cancer supervened during the progress of phthisis. On the other hand, Rokitsansky considers that cancer is more likely to follow tubercle than tubercle to follow cancer. He doubts whether the two deposits have any more relation to one another than that of coincidence. But he states that suppurating cancer is sometimes accompanied by a whitish, glutinous tubercle, which he regards as tuberculous disease of the already cancerous fibrine.

At the same meeting, Dr. JENNER brought before the Society a case in which he believed medullary cancer and tubercle were present together in the lungs. The patient from whom the specimens were taken was a man in the middle period of life, who had died under the care of Dr. Hall Davis. Encephaloid disease was found springing from the bones of the head and in the lungs. Gray tubercle also existed in the apex of one lung. Dr. Hall Davis, Dr. Walshe, Dr. Bright, and Dr. Jenner himself, entertained no doubt, after a careful inspection of the morbid parts, that cancer and tubercle were really coexistent in this instance. Dr. Jenner was alone responsible for the microscopic appearances. He found, in the lung, cells characteristic of medullary cancer, and in other parts the compound granular cell described by Lebert as distinctive of tubercle. He had brought down these microscopic specimens, so that the members might form their own judgment respecting them.—*Med. Times and Gaz.* Nov. 13, 1852.

25. *Relation between Hysteria and Phthisis*.—DR. T. THOMPSON read before the Medical Society of London a paper on this subject, the object of which was to show first, that hysteria often simulated phthisis; secondly, that it tended to aggravate certain symptoms of incipient consumption; thirdly, that as phthisis becomes established, hysterical symptoms grow less characteristic and various, and finally disappear; fourthly, that when the two diatheses coexist, both the prognosis and treatment must be modified. The author suggested some points of distinction between the true and the simulated forms of phthisis, especially the peculiar barking cough in the latter; the relative disparity between the local and general symptoms; the inconsistency of the loquacious complaints which the patient uttered, with an indifferent or sprightly countenance; the pain under the left mamma; sensitiveness of the skin, especially over the sternum and between the shoulders, and a sense of impending suffocation when pressure was made on these two points simultaneously. Hæmoptysis was in the early periods of phthisis often increased, and might, indeed, be altogether induced by hysteria without the existence of tubercle. Under such circumstances, it not unfrequently recurred at fixed periods both of the day and night. The profuse discharge of blood which occasionally attended hysterical hæmoptysis, might be due partly to sudden congestion, and partly to a diminution of the components of the crassamentum in the blood. Dr. Thompson believed that hysterical congestion sometimes occurred to such an extent in the lungs,

as to occasion evident dulness on percussion; but such a sign was not stationary, like phthisical dulness, but apt to vary from one side to another. The author suggested that local congestions occurred in these cases in consequence of the incessant attention directed by the patient to the lungs or other organs, which probably disturbed their functions; and a continued state of expectancy for morbid action (as in the instance of cramp) tends to its renewal. Dr. Thompson related several cases in support of his statements. In one, pseudo-phthisis was brought on by mental disquietude, and was rapidly benefited by change of scene. A second was troubled with incessant cough, and had profuse hæmoptysis, occurring at stated periods of the night. A long time elapsed before these symptoms yielded to treatment, yet the grounds for suspecting phthisis were extremely slight. In a third case, the respiration was accelerated to 70 in a minute, with difficult and painful inspiration. This symptom, however, soon yielded to remedies calculated to invigorate the nervous system and relieve spinal irritation, although certain local signs, such as the family history, and the appearance of the gums, naturally excited apprehensions as to the ultimate result. The fourth case was that of a young woman who had been for nearly five years subject to varied hysterical symptoms, gastrodynia, palpitation, and cough. Dulness was detected on percussion, which shifted from one side to the other. Gradually, however, the hysterical symptoms disappeared, and the indications of pulmonary affection were fixed to one side, although considerable advantage was derived from the administration of cod-liver oil and other treatment. Dr. Thompson concluded his communication by remarking—1st. That when phthisis commences in hysterical subjects, the symptoms are often aggravated to an extent disproportioned to the amount of organic change. 2dly. That hysteria and phthisis, although not incompatible, are uncongenial; so that, as the latter disease advances, the former usually retreats; and that the coexistence of hysterical symptoms, especially if severe, may encourage a somewhat hopeful prognosis, even when phthisis is established. 3dly. That when these two disorders are concurrent, a more “hardening system may commonly be adopted than is expedient in cases of unmodified consumption.”—*Med. Times and Gaz.* Nov. 13, 1852.

26. *On the Relations of Vaccination and Inoculation to Smallpox.*—Dr. WALLER LEWIS read a highly interesting and valuable paper on this subject before the Epidemiological Society. The following are some of the questions raised by this paper that well deserve further elucidation, and which would have received it by the author, had he not been prevented by his wish to make the communication as practical as possible, and his desire to leave time for discussion of the principles he brought forward. Does vaccination act as a protective or a mitigator of any other disease than variola—measles, for instance?—Is it a law that revaccination is effective in the ratio of the distance of time from the previous vaccination? Can a systematic supply of fresh vaccine virus be kept up by artificially inoculating cows? What are the advantages of such lymph, if it can be obtained, over the often-transmitted lymph? What is the influence of sanitary conditions on smallpox? How is epidemic smallpox affected by the co-presence of another epidemic—cholera, for instance? Does variola ever arise from any other cause than contagion? Is it ever formed *de novo*, as from malaria, noxious and putrescent gases, or by the aid of these or similar causes? Can variola lie dormant in a constitution a period of six months or more? Does the disease in dogs, termed distemper, constitute the analogue of smallpox?

“The object of the paper (said the author) is to endeavour to deduce some general laws respecting smallpox and vaccination, that may pave the way for clearing up some of the apparent mysteries and incongruities that now surround these subjects. As one of the members of your Committee that has been for some time engaged in preparing a report on these two subjects, some thousands of letters have passed through my hands. Many of these letters contain histories of remarkable cases that have been attended by practitioners, not only in this country, but throughout the world; and many contain the results of their experience of the disease. In the foreign correspondence that has taken

place between myself, as one of your foreign correspondents, and the Ambassadors, Ministers, Syndics, Sanitary Boards, and Medical Academies of nearly every portion of the civilized world, many interesting and important particulars have been gleaned, which, although they could not have been extracted and thrown into the Report of the Committee without making it too ponderous and bulky, have been made use of when they have served to illustrate a position or to fortify a practical deduction. Some other cases have been sketched, which, without tending directly to develop a law, are interesting as furnishing subjects for further inquiry. In a large portion of this paper the language is my own, but, in some instances, the cases are taken *verbatim et literatim* from the correspondents' own letters. This will account for the provincialisms to be met with occasionally." We commence by giving two or three cases that show the efficacy of vaccination: "The father of a family obstinately refused to have his children vaccinated. He had three daughters by his former wife, four by his present one. The eldest of the second family had been vaccinated without his knowledge; the others he had forbidden. All the children of both families took smallpox, except the one child that had been vaccinated clandestinely." "Three children, A, B, and C, the daughters of Mrs. S., who had hitherto refused to have her children vaccinated, were exposed to smallpox, owing to a sister being brought home while labouring under it. I had only enough lymph to vaccinate A fully and B partly; C was left to take her chance. A took vaccinia perfectly, and entirely escaped smallpox; B took imperfectly, and had the disease mildly. C took the disease fully." "I attended a case of smallpox in a cottage where there were two unvaccinated children, the parents not approving of the practice. As a personal favour, I was allowed to vaccinate one of them. Vaccinia was perfectly developed, and saved that child; the other had a most severe attack of smallpox." The author continued: "I believe I may say, both from my own experience and the innumerable cases that have come before me as a member of your Smallpox and Vaccination Committee, that the most certain way of taking smallpox is by medical students dissecting smallpox subjects. A very large proportion of those medical men who have taken smallpox after vaccination have had the disease from this cause. The following case will furnish a very powerful proof of the protective power of vaccination, even against exposure in that way: 'Upon commencing my hospital studies at St. Bartholomew's, in 1829, I took part in the dissection of seventeen smallpox bodies. Previous to commencing upon them I was revaccinated, but without effect. I then, without fear, began dissection. The third subject was an extremely bad confluent case, and scarcely cold. Whilst making the first incisions through the integuments, with the scalpel literally dripping with matter, I wounded the index finger of the left hand, regardless of which I continued dissecting during that and the following day. I felt indisposed in the afternoon of the second day, passed a very restless night, followed by one day's severe fever. Over the seat of the wound a single pustule of modified smallpox appeared. After this I had not the slightest inconvenience, and went through much exposure to smallpox with safety.'"

Vaccination more protective than Inoculation.—"Some years ago Miss M. G.—married a tradesman in London. She had been vaccinated when a child, but ineffectually. About a month after her marriage, she fell ill with confluent smallpox. During the attack, her husband and a young sister were constantly with her. These had been vaccinated when children. On being called to the case, I advised the husband to be revaccinated, and I took away the younger sister, sending in her place an elder one who had been inoculated. The father, an aged man, who had also been inoculated, went also, and remained with his daughter till she died. The result was this: The husband, who, in his anxiety, neglected to be revaccinated, escaped the disease notwithstanding. The younger sister was slightly indisposed for a few days, but had no eruption. The two who had been inoculated, viz., the father and elder sister, both had smallpox eruption and fever." The Doctor then read several cases in which vaccination had been protective from smallpox, where a previous attack of smallpox had failed to be so.

Measles rendered milder by Vaccination.—"Joler has described an epidemic of measles that took place in the Retzat Circle, in Bavaria, in the district where he himself resided. He says that the disease was much milder among the vaccinated than among the unvaccinated. 15 in 52 died among the non-vaccinated, while barely 1 in 300 died among the vaccinated, showing that measles was 86 times more fatal among the former than the latter." Examples of careless imperfect vaccination were then dwelt on, and the author stated that his opinion was clear and decided on the point, that where well-marked normal cicatrices were not left, the operation should be accounted a failure, and repeated, although he owned that this was not entertained by many practitioners in this country and Germany. Vaccinating from revaccinated persons, from those who had been inoculated, and from such as had previously had smallpox, was strongly denounced, as vaccinia must be extremely modified in such cases. The author added: "When we interest ourselves strongly in the propagation of vaccination, we must guard ourselves from furnishing arms to its adversaries. And is it not furnishing them with arms to employ a virus of which we are not certain?" A most interesting collection of cases was then read, in which smallpox had attacked the same individual three or four times; among others, the following, that had come under the author's own attention was narrated: "Robert D., a tradesman living in North Audley-street, had smallpox the first time at the time of his birth, his mother suffering from it at her confinement. He was attacked with the disease a second time when a boy at school, between nine and ten years of age. When eighteen years of age, he took it for the third time from his sister, who died of it. All the attacks were severe, but the last the most so. He lost his hair and his nails, and the skin of his feet; he was blind for several days, and his life was despaired of. However, he is still alive, and not much disfigured. He was never vaccinated nor inoculated. I believe, if again exposed to the disease, he will take it again." Cases were then adduced, to show that several members of the same family appear sometimes to show great susceptibility to take the disease. The following curious case of smallpox in the lower animals was then adduced, the author adding, that any similar well-attested cases would be very valuable additions to the facts collected by the Society on this subject. "The following case was related to me by a lady of rank, on whose veracity I can place the greatest reliance. Some years ago, just after her confinement, she was seized with smallpox. It became necessary to have her breasts drawn, and, as no child could be obtained, recourse was had to a puppy, which answered the purpose. At the usual time the puppy sickened, and had the disease known by the name of the 'distemper.' It is said that vaccination, when successfully performed on puppies, will almost to a certainty prove a prophylactic against distemper." Then followed some interesting cases of individuals who could be neither vaccinated nor inoculated. The last cases adduced were of individuals who appeared to have perfect immunity from smallpox. "I have detailed the case of Robert D., who evidently possesses a strong innate susceptibility to the action of the smallpox virus, as shown in his having already taken the disease three several times. I have now to draw your attention to a case the most directly opposite to this. Strangely enough, it is that of his own brother Thomas. From the elder brother Robert, as well as a sister, having taken smallpox, the parents believed that all their children must take the disease, and refused to have the subject of this case vaccinated or inoculated. He was accordingly exposed when a child to the contagion, lying in the same room with his sister, while she was suffering from the disease, as well as waiting on his brother in his second and third attacks. Although since that time he has been several times exposed to the contagion, he has never felt the slightest ill effects from it." "Examples of persons possessing a natural immunity from the disease are rather numerous. Dr. Jackson, of Philadelphia, saw a man at the Smallpox Hospital, engaged in laying out and burying the dead, who had never had an attack of the disease. He had been frequently inoculated and vaccinated, but always unsuccessfully. Van Swieten speaks of a physician, seventy years of age, who had practised through numerous epidemics of the disease, but had never taken it. Diemerbroeck states that immunity from

smallpox was a privilege of his family. It was possessed, he asserts, by his grandfather, grandmother, his father, and himself." The author drew the following deductions from the cases adduced:—

1. That vaccination is a most eminent protection against smallpox.
2. That when perfectly performed it is almost, and, in some instances, more protective, than inoculation or smallpox itself.
3. That it appears to render some exanthemata, *e. g.* measles, milder than they would have been otherwise.
4. That neither vaccination, inoculation, nor smallpox, guarantees the individual, in every instance, from smallpox.
5. That smallpox attacks some persons three times, or oftener.
6. That there exist certain individuals who have perfect immunity from vaccination, inoculation, and smallpox.
7. That great susceptibility to, or perfect immunity from, smallpox, is sometimes found to be common to several members of the same family.
8. That sanitary conditions have a very powerful effect on the spread of smallpox in common with other epidemics.

Conclusions.—The author thus terminated his most interesting communication: "It appears, from the foregoing cases and the deductions therefrom, that the laws that regulate the apparent mysteries of smallpox are as follow:—

"A. Smallpox is a disease to which almost every person is liable once in his lifetime unless protected.

"B. But there is a small fraction of the community who appear to enjoy an exemption from this law; no degree of exposure, either to vaccination, inoculation, or casual smallpox, causing them to take vaccinia or variola.

"C. That there is a certain portion, on the other hand, who are, unfortunately, in the exactly opposite condition. These individuals, whose systems appear to present a soil peculiarly favourable to the development and spread of smallpox virus, are eminently susceptible of the disease. It is to this class that belong those persons who have repeated attacks of variola, who take smallpox after being inoculated or vaccinated. I believe that for such persons there is no safety but in repeated vaccination.

"D. And, lastly, that between this latter class and that favoured portion of the community that possess perfect immunity, there exists every shade and degree of susceptibility.

"These laws explain the apparent inconsistency respecting the protective powers of vaccination. In this view, all those individuals, forming an enormous majority of mankind, who possess an ordinary moderate degree of liability to smallpox, are completely guarded against the activity of smallpox virus either by perfect vaccination, inoculation, or smallpox; while others, who have a much greater susceptibility, will neither be protected by one or other of these expedients."—*Med. Times and Gazette*, Jan. 15, 1853.

27. *On the Use of Collodion in Smallpox and Erysipelas.* By Dr. CHRISTEN, Assistant Physician to the Prague General Hospital.—It has long been a desideratum in medical practice to prevent, if possible, especially in females, the scars usually left by smallpox on the face and on other exposed parts of the body. To this end the most dissimilar means have been tried and recommended, and have been again, in course of time, laid aside, as at least useless, if not directly injurious.

Very recently, it was thought that a preservative, capable of meeting all requirements, had been found in collodion. Nor was this agent long without receiving its share of commendation. Although many considerations occurred *à priori* to the mind against its use, it could not be directly condemned, in opposition to the testimonials in its favour, without repeated and extensive trials of its efficacy in cases of various intensity. The never-failing cases of variola in the Prague General Hospital, which were particularly numerous in the month of May, afforded sufficient opportunity of testing the value of collodion in many points of view.

The collodion was in most cases employed in the stage of papular development (*stippenbildung*), the earliest period when, in general, the diagnosis of

variola could be made with certainty. It was applied over a greater or less extent of the face and extremities, and in two cases the entire face was smeared with it. The results were as follows: As the collodion dried and shrank, the redness of the papulæ diminished, the slight oedema of the skin disappeared, and the covered and adjoining parts became tense. With the progressive development of the pustules, and the accompanying increase of infiltration of the skin in their immediate neighbourhood, this tension became intolerable, especially in those cases in which the entire face was covered, and so annoyed the patients that means had to be taken, before the termination of the variola, for the partial or complete removal of the collodion. The further development of the variola was neither prevented nor lessened, but only modified, by the papulæ under the layer of collodion forming even points of pus, which, as the suppurative process advanced, became confluent, and in severe cases formed a nearly uninterrupted layer. The evaporation of the liquid parts was so impeded that fluid pus was still found under the collodion, when the pustules on the other parts of the body had dried and crusted.

In those cases in which the collodion had to be partially or entirely removed on account of the intolerable tension, capillary extravasations took place soon after the pressure was removed, in the form of numerous ecchymoses under the epidermis, loosed from the corroded corium, which soon assumed a dark colour, and gave the patients a still more repulsive appearance. The suppuration had, as a natural consequence of the prolonged retention of the pus in the fluid state, spread more broadly and deeply; the scars, instead of being prevented as was intended, were more extensive and deeper, and were plainly perceptible even in those lighter cases, in which the surrounding parts, which had not been smeared with the collodion, presented scarcely a trace of a cicatrix.

The collodion also appeared, especially when extensively applied, to exercise an unfavourable influence on the general course of the disease. That it must, by suppressing the function of the skin, have an absolutely injurious effect when its application is general, and uninterruptedly kept up, is, according to physiological laws and our experience of the operation of analogous influences on the human organism, as clear as possible. But the arrest of evaporation, and the great extent of matter under the covering of collodion, appear to be of still greater importance, promoting as it does in a great degree the absorption of the pus, and favouring extremely that state of pyæmia which is so apt to occur when the eruption is extensive.

From the foregoing observations, thus briefly related, the employment of collodion in smallpox consequently appears to be not merely useless, but also directly injurious and inadmissible. In mild cases of variola, from which the favourable results that have been recorded appear to be derived, its use is superfluous, and, in severe cases, with extensive eruption, from which our present conclusions have been chiefly drawn, it is absolutely prejudicial and objectionable.

As to the influence of collodion on the course of *erysipelas*, the cases I have observed justify the following remarks: In symptomatic erysipelas, depending on internal causes, its effects appear at first to be very surprising; the redness disappears; the swelling and pain become less, and a feeling of tension and numbness occurs in the parts which have been smeared with the collodion; nevertheless, the general phenomena, and the complications which may be present, continue unaltered, and in a short time, sometimes only a few minutes, the erysipelas commences to pursue its course unchecked, in the neighbouring or in distant parts of the body, even when the repeated application of the collodion follows closely on its track. The effect then is, like the remedy itself, merely local and transient. Collodion fulfils the indication as little as other means of demarcation which have been recommended; as, for example, cauterization with nitrate of silver or with acids, inunctions with mercurial ointment, &c. Facts, apparently of an opposite nature, in my opinion probably refer to cases in which the collodion was applied at a time when the process was about to terminate, or where, without its employment, the erysipelas would not have advanced further.

The employment of collodion appears to be more useful in erysipelas arising from local causes. In erysipelatous wounds, ulcers, slight burns, erysipelas from insolation, and similar cases, its use is decidedly advantageous. Although I have not had the opportunity of making many observations on this part of the subject, I will briefly communicate the results I have obtained. The immediate effect is the same as in symptomatic erysipelas; the redness, swelling, pain, and vesication rapidly disappear, and depots of pus do not so readily form. In a case of gangrenous erysipelas of both eyelids, the repeated and tolerably extensive use of collodion on the surrounding parts, after the gangrene was arrested and the greater part of the gangrenous portion had separated, speedily removed the infiltration of the edges and a burrowing abscess, as slight as could well be expected in that situation. In a case of erysipelas with very considerable vesication on the backs of both hands, and reaching to the wrist-joint, the consequence of severe insolation, the collodion was, for the sake of comparison, abundantly applied to one hand, while the other was merely treated with cold fomentations. On the application of the collodion the pain immediately ceased, and was replaced by a feeling of numbness and stiffness. The diffused vesicles and the very considerable oedema rapidly subsided, and the course of the disease was thereby much shortened; while the vesication on the other hand increased in size and extent, and when emptied filled again, the oedema subsided but very gradually, and the pain was very much aggravated by the exposure of the corium. On the fifth day after the patient's admission into hospital, the hand which had been treated with collodion, and in the intervals with cold applications, had regained its normal volume. The pain, oedema, and blisters had disappeared, and nothing remained but a slight stiffness of the hand and a parchment-like dryness of the epidermis, while the other hand was, so late as the tenth day, considerably swollen and painful. In the instances I have mentioned, and in slight burns, the use of the collodion has proved of decided advantage, and it deserves to be recommended in similar cases.—*Vierteljahrsschrift für die praktische Heilkunde*, Band 4, 1852. Originalaufsätze, p. 92.

28. *On the Application of Gutta-Percha in the Treatment of Diseases of the Skin.* By ROBT. J. GRAVES, M. D.—“When a wound or injury inflicted on any portion of the surface has exposed the structures naturally covered by the skin, immediate irritation is the consequence, and this never entirely ceases until nature has been able to provide some substitute for the abraded or otherwise destroyed integument. The manner in which the denuded surface is covered with a temporary protection, sufficient to guard it against the contact of the air and other external injurious agents, varies according to the circumstances of the case: in many instances blood coagulated on the wound adheres firmly and remains in contact with every point, until the reparative efforts have healed the parts and covered them again with a new skin. When such a process takes place favourably, this most simple of all dressings effects a cure without any external discharge or inflammation, and enables the parts to be reformed, or, as the late Professor Macartney termed it, remodelled by the first intention.

“Of late years, surgeons have derived much advantage from the use of different imitations of this natural process, and have employed at first solutions of collodion, and finally gutta-percha dissolved in chloroform, for this purpose. Reflecting upon the great superiority of this method over the others formerly used, it struck me forcibly that it was capable of a much more general extension, and that the chloroform solution of gutta-percha might be usefully employed in the topical treatment of cutaneous affections. The more I thought on this subject, the more sanguine I became that this new agent would form a useful addition to the list of remedies employed in combating a class of diseases confessedly so obstinate and so difficult of cure. The result of repeated trials, I am happy to announce, has not disappointed my anticipations, and consequently I now feel myself called on to lay before the profession a statement of those cases in which this application has either effected a cure, or mainly contributed to the successful treatment of the complaint.

“When the saturated solution of gutta-percha in chloroform is spread by

means of a camel's-hair pencil over a portion of the skin, the solvent fluid rapidly evaporates, leaving a delicate and extremely thin pellicle of gutta-percha firmly adhering to the part. The peculiar toughness of gutta-percha prevents this pellicle from being brittle, and therefore it is much less liable than collodion to crack and fall off in small scales. On the forehead or face, where it is not affected by friction of the clothes, it remains firmly attached for five or six days, or even longer, but on other portions of the surface it is often rubbed off much sooner; over dry eruptions of the skin it lasts longer than over those which are moist, and over smooth and firm spots, of course longer than over those covered with rough morbid scales, or loosely adhering crusts. Before the application of this solution, therefore, the practitioner will do well to render the portions of the cutaneous disease to which he intends to apply it as free as possible from crusts or scales, by means of poultices, alkaline lotions, &c. When this precaution is taken, he will find that the artificial cuticle which he has applied with his brush will in certain cases act most sensibly on the subjacent disease, diminishing inflammation and its consequences, and powerfully contributing to the restoration of the healthy structure of the skin.

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"The transparency of this artificial membrane enables us to watch the progress of the subjacent diseased skin, and its colourless nature prevents it from disfiguring the face when the eruption occupies that part. Its perfect cleanliness, too, is no small advantage, and affords a very agreeable contrast when compared with the usual ointments, &c.

"My observations confirm what reasoning on this subject would lead us to expect, that this application is more suited for dry, scaly, tubercular, and chronic diseases of the skin, than for acute affections attended with much oozing of fluid and comparatively active inflammation.

"Still, its good effects are by no means limited to chronic diseases of the skin, or to those of a scaly, dry nature; for, as will hereafter appear, I have seen it decidedly useful in the spreading form of impetigo. My experience of this remedy makes me very anxious to witness its application in the first stages of erysipelas, as analogy leads me to hope for good results in such cases.

"Of course, the patient must aid the efforts of the physician, and must, as far as possible, abstain from everything which tends to rub off or injure the artificial cuticle; for its virtue ceases when its continuity is broken and the external air finds admission to any part of the diseased surface.

"Early in the month of November, 1851, I was called to visit Mrs. C., from —. She was about 50 years old, full and plethoric; the mother of a large family, and, until the disease of which she then complained of commenced, generally healthy. About two years before, she observed small spots of impetigo on her limbs and body, which succeeded each other, some healing while fresh ones appeared. During summer, she was nearly free from them; but last autumn they returned with greater virulence than ever, and have since increased both in size and numbers, some being larger than the hand, and attended with constant oozing of fluid, which imperfectly coagulates, forming loose and thin crusts. The itching at night is intolerable, and nearly deprives her altogether of sleep. I employed the usual general and topical treatment for a fortnight, with alleviation of her sufferings, when luckily I thought of trying the saturated solution of gutta-percha in chloroform, and had it carefully applied by Mr. Nicholls, of Dawson Street, at first by way of trial, to one of the smaller spots, and on the following days to each of the larger patches of eruption in succession. The relief obtained was such that it appeared almost incredible both to the patient and her family. Her cure was accomplished in less than three weeks; for, dreading the sudden stopping of so great a discharge and so much cutaneous irritation, I proceeded cautiously, and, towards the end of the cure, when she returned home, I directed an issue to be inserted in her arm, as a measure of precaution. She has continued well up to the present time (11th April, 1852).

"In this patient we were at first obliged to reapply the gutta-percha every second day, as it was rapidly detached and broken up into large flakes by the discharge from the subjacent surface. Its healing influence, however, speedily

diminished the diseased secretion, and then the artificial cuticle remained longer adherent, and it was not necessary so often to use the scissors for the purpose of cutting off the loose portions of gutta-percha membrane previously to applying a fresh layer. I ought to have remarked that the camel's-hair brush should be plunged, the moment it has been used, into hot water, to prevent it from being consolidated by the coagulated gutta-percha.

"This case caused a great sensation among my patient's friends and relatives, and many were the inquiries made relative to my method of cure. I must confess that my own astonishment at the result was not less than theirs.

"Since that time I have repeatedly used this application in *acne of the face*, in which disease each of the pimples should be covered with the solution, and the patient enjoined not to rub off the pellicle by washing, &c.

"In some, this treatment alone causes a material and rapid diminution of this tormenting eruption; and, by perseverance in this plan, there is every appearance in two of my patients that the tendency to throw out the pimples is gradually ceasing.

"Finally, in several cases of psoriasis, I have applied this solution with great benefit. In this disease, much care must be taken to prevent the application being rubbed off by the clothes, and no woollen stockings or rough garment of any sort should be allowed next the skin. I had the satisfaction of curing in a fortnight a chronic psoriasis of the back of the hands and arms in a lady, who had been under homœopathic treatment for six months, without deriving the least advantage from the infinitesimal doses prescribed by the practitioner.

* * * * *

"My anticipation respecting the utility of an artificial cuticle applied over the parts affected by commencing erysipelas has, I find, been verified, as appears from the following paragraph, taken from Dr. Neligan's able *Treatise on Diseases of the Skin*:—

"Acting as an impermeable varnish, and probably producing some effect, also, by the compression it causes, collodion has been successfully employed by Spengler and Rapp, as a local application in erysipelas. The parts are thickly coated with it by means of a camel's-hair pencil; and it is renewed as often as may be required, in consequence of its cracking and peeling off when dry."

"When my friend Dr. Stokes heard of my success in other cases, he resolved to try the gutta-percha solution in smallpox, and it gives me great pleasure to say, the result of two trials is most encouraging, and leads us to hope that at length the means of preventing the formation of disfiguring scars on the face in that disease has been discovered."

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"In communicating these cases, Dr. Stokes observed, as worthy of notice, and probably connected with the beneficial result produced, that the most remarkable effect of the gutta-percha was to keep the face constantly moist, and to prevent the formation of hard, irritating crusts. He also mentioned to me a singular illustration of the effects of total exclusion of air from the cutaneous surface, as a preventive of the eruption in smallpox. It was that of a man, who, while in the Heath Hospital, for a scrofulous enlargement of the knee-joint, was attacked with this disease; the knee had been previously tightly strapped with adhesive plaster, and on the disappearance of the eruption, it was seen, on removing the strapping, that not a single pustule had been developed on the parts which were thus covered.

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"I shall conclude with observing that, in psoriasis and other chronic cutaneous complaints unattended with any constitutional derangement, it is of the greatest consequence to check the growth of each new spot. This the gutta-

¹ Page 48.

² It is of great importance, and essential to the success of this treatment, to observe that the *gutta-percha* solution should not be applied to the face until the pustules are fully matured, or even begin to exhibit the first appearance of collapse, as indicated by the well-known central depression on the apex. Applied then, the solution is of the greatest service; *applied before maturation, it is mischievous.*

percha does most effectually in psoriasis, and when applied daily to any recent points of irritation, it smothers, as it were, each nascent centre of future blotches."—*Dublin Quarterly Journ. of Med. Sci.* June, 1852.

29. *Chlorate of Potash in Ulcerative Stomatitis and Cancrum Oris.*—Dr. J. H. BABINGTON states (*Dublin Quarterly Journal*, Feb. 1853) that, in an epidemic of ulcerative stomatitis which occurred in the Coleraine Union Workhouse, in 1849, he used the chlorate of potash with great success. The treatment adopted was a mild aperient of rhubarb and magnesia, and the administration of chlorate of potash, dissolved in water, sweetened with syrup, in doses of four grains every fourth hour; the mouth was also washed with a weak lotion of solution of chloride of soda. They all recovered in about six days. Dr. B. treated one case with alteratives and tonics, and it was three weeks before it got quite well; thereby proving the efficacy of the chlorate of potash.

30. *Delirium Tremens treated by the Internal Administration of Chloroform.*—Dr. JAMES F. DUNCAN records (*Dublin Medical Press*, February 16, 1853) a case of delirium tremens successfully treated by the internal administration of chloroform, as first recommended by our correspondent, Dr. Pratt, of Baltimore.

31. *Suppurative Derivation as a Therapeutic Agent.*—Dr. HUGHES WILLSHIRE, in a very interesting paper on this subject, read before the Medical Society, London (Dec. 11, 1852), expressed his belief that the use of setons, issues, &c., was not only far less than formerly, but far less than it ought to be, considering the undoubted value of these agents in the alleviation of many disorders. He then passed in review those circumstances which led to the belief that very considerable effect may be exerted upon the deeper-seated tissues, &c., of the body, and consequently upon the functional and lesional aberrations constituting many internal disorders, by natural or artificial derivation to the surface of the frame. It was then shown how, in early periods of the medical art, and in times not long before our own, this belief was practically acted upon, and the important share that "suppurative derivation" was made to assume as a therapeutic agent. Its employment, however, he considered, was getting greatly out of fashion, and he thought that the introduction of anæsthetic agents tended to diminish still further its use, as both the public and the profession were of course the more and more inclined to the adoption alone of what he might term "a painless therapeutic." The author then alluded to several important maladies, in which he regarded the use of setons, issues, &c., as often of very great avail. He particularly mentioned phthisis, in its early stages; epilepsy, in certain of its forms; hypertrophy of the brain, with chronic cerebral congestion in children, &c. Of course, "suppurative derivation," in whatever form induced, could have but slight effect over general systemic aberrations from health, dyscrasies, cachexies, and so on; but he considered that it often excited a very powerful one over the local stasis, &c., in the minute vessels and tissues of visceral and deep-seated parts. In these, the systemic affection often made known its first and sometimes most severe recognisable "manifestations," and which of themselves reacted detrimentally, even fatally, in a sort of reflex way, as it were, upon the frame. At any rate, whatever views might be adopted as to the *modus operandi* of the form of treatment he was discussing, he believed that, practically, it would be found, under its appropriate indications, to be one of those valuable and effective methods of palliation or cure we should not so willingly allow to be forgotten, as we are doing in the progress we are making in some of the departments of clinical medicine. After a pretty full consideration of the physiologic and other reasons for our trust in it, and its practical illustration by references to cases so treated, the author concluded his paper with some remarks on what he designated as the "minor surgery of the matter."—*Lancet*, Dec. 18, 1852.

32. *Electrified Oxygen, or Ozone, in the Treatment of Albuminuria.*—At the meeting of the Academy of Sciences in Paris, on January 17, M. ROBIN made a communication, with the view of showing that electrified oxygen, or ozone,

mixed with air, might be of advantage in the treatment of albuminuria, by favouring combustion.

The author said that, at the time when his researches and those of others showed the extreme importance of slow combustion in the maintenance of the vital phenomena, other experiments had pointed out ozone as much more appropriate for maintaining combustion than oxygen obtained by the ordinary chemical processes. Hence ozone, either pure or mixed with air, would be a valuable agent in cases of asphyxia, in scrofula, in cases of poisoning in general, and in all circumstances where it is either desired to support the powers or to stimulate combustion when reduced below its normal standard, or especially as a reanimating agent in cases where air and ordinary oxygen are found of no service.

Electrified oxygen is easily obtained by the decomposition of water by the galvanic pile. It may be mixed with air, by causing a current to flow into the tube through which the oxygen is inhaled.

Two birds were rendered insensible; one was then introduced into ordinary oxygen, the other into pure ozone. The one which was introduced into the ozone recovered more rapidly, but manifested much agitation; while the other recovered quietly.—*Association Medical Journal*, Jan. 28, 1853.

33. *Therapeutic Uses of the Bark, Leaves, Seeds, and Root of the common Ash (Fraxinus Excelsior).*—In a work recently published by Dr. OTTERBOURG,¹ some interesting remarks are made upon the use of the *leaves* of the ash in gout and rheumatism. It appears, that since these leaves were introduced into the *matéria medica* of Germany in 1841, by Rademacher, they have enjoyed a very considerable reputation for remedial powers in the diseases just named. Apparently in ignorance of the therapeutic reputation which ash leaves had obtained in Germany, two French physicians, Drs. Pouget and Peyraud, published a paper in the *Union Médicale* for Nov. 27, 1852, in which they detail various cases of gout and rheumatism cured by the ash-leaves; and among the cases of gout described is that of one of the authors, Dr. Peyraud. The value of the *bark* of the ash is of older date, and is better known. A few remarks, founded upon the works referred to, and upon information gleaned from other sources, may be useful to many of our readers, who, in hospitals, dispensary, or union practice, may be often glad to be able to substitute cheap and indigenous remedies for costly drugs, whenever equal advantages can be obtained from the former.

The bark of the *fraxinus excelsior* is bitter and astringent. Its febrifuge action is undoubted; and, so long ago as 1712, it received the name of European cinchona. It has been employed in the form of tincture, decoction, infusion, and powder. The dose is rather larger than of the corresponding preparations of cinchona. The infusion is as good a form as can be adopted. We may remark that the retail price of the bark, in Covent Garden Market, is two-pence per ounce.

The leaves are said by some to be purgative; by others, they are declared to have no such effect. From their general similarity of appearance, they are sometimes substituted by the druggist for senna leaves. The London seed-vendors generally have a supply of ash-leaves, but they inform us that they are seldom asked for, and that they do not know the therapeutic virtues on account of which their customers purchase them. We believe that an investigation of the medicinal properties of ash-leaves would, if properly conducted, yield some useful results; for, in various parts of this and other countries, they now are and long have been used successfully in various traditional nostrums.

In 1842, Dr. Peyraud had his first attack of gout, which was severe, and lasted for twenty-five days. During the three following years, the attacks increased in frequency and severity. Having derived little benefit from the remedial means which he had resorted to, he listened to the suggestion of one of his patients, an inhabitant of the department of Dordogne in France, who advised him to try an infusion of ash-leaves, informing him, at the same time,

¹ *Aperçu Historique sur la Médecine Contemporaine de l'Allemagne.* Paris, 1852.

that his forefathers had been cured by this prescription, and that many of the country people got rid of "their pains" by employing it. Dr. Peyraud took the infusion of ash-leaves, and from 1845 to 1849 had no fit of gout. He then had an attack, which yielded in five days to the infusion of ash-leaves, used under the observation of Dr. Pouget. These circumstances recalled to the recollection of Dr. Pouget a fact which he might otherwise never again have considered. It was this: that when he was a physician at Sorèze, in 1824, the peasants of that place had spoken to him of the great power which an infusion of ash-leaves had in driving away pains. He afterwards discovered that it had been used forty years ago as a gout specific by the peasants of Auvergne.

A commercial traveller, who had been gouty for twenty years, and had saturated himself with the syrup of Boubée and other vaunted specifics, consulted Dr. Pouget. At this time he was an almost constant prisoner in his room with successive attacks. After eleven days' use of the infusion, he was able to walk two kilomètres (one and a quarter English mile); in fifteen days he resumed his journeys, and was able to travel without suffering, by diligence, from Bordeaux to Quimper.

Several other cases are detailed, some of them acute, and others chronic. Articular rheumatism, in numerous instances, was also benefited by the infusion of ash-leaves.

Drs. Pouget and Peyraud thus sum up their opinions as to its efficacy and mode of administration:—

"The powder (infused) of ash-leaves is perhaps a true specific for gout and rheumatism; combining with the most powerful curative action, the immense advantage of giving rise to no dangers nor inconveniences, such as result from the use of colchicum. Having no purgative properties, it may be taken in any condition of the digestive canal. It causes neither nausea, sickness, general discomfort, nor depression. Experience enables us to state, that generally, under its use, at the end of four or five days, and sometimes sooner, the pain, redness, and swelling have sensibly diminished in intensity, or have even disappeared."

The method of administration is thus minutely described:—

1. Each dose of the powdered leaves ought to be infused for three hours in boiling water.

2. Before this infusion is taken, it requires to be sweetened to taste, and strained through a linen cloth.

3. In acute gout, and especially at the commencement of the attack (whether with or without fever), two doses of the powder ought to be infused in three cups of water; one to be taken at bedtime; the second, early in the morning; and the third between breakfast and dinner. The medicine, in diminished doses, requires to be continued for eight days after the symptoms have disappeared.

4. In chronic gout, a cup of infusion ought to be taken night and morning, for a long period. Fits of gout may be more or less indefinitely postponed by having recourse to this treatment, say for eight or ten days in every month.

5. In acute rheumatism, the infusion greatly assists the action of other medicines which are commonly used; and it is particularly beneficial in removing articular swellings. It produces equally good results in chronic rheumatism, whether articular, muscular, or nervous.

6. During the use of the remedy, it is not necessary in any way to change the mode of living, nor to adopt any special regimen, so long as the laws of sound hygienics are observed.

Speaking of the dose and method of administration, Dr. Otterbourg says: "Several times during the day, thirty-two grammes of ash-leaves may be taken, infused in a sufficient quantity of hot water. In muscular pains, and in rheumatism of the scalp, this is an excellent means of cure."

From various works, we have gleaned the following notes regarding the bark, leaves, seeds, and root.

Pliny ascribes numerous medicinal virtues to ash-leaves, and speaks of them as a specific for the bites of serpents (lib. vii. c. 13). Bouregard, a surgeon of Rochelle (*Anc. Journ. de Méd.* vi. 233), and others, have cited cases from their

own practice in corroboration of this statement. Willich and others speak of the tonic properties of ash-leaves. Pélétin and Gilbert recommend them in scrofula. Tablet, in 1711, declared them to be equally purgative as senna leaves, but less liable to cause griping. Coste and Willemot found them less aperient than senna leaves, one-third more being required as a dose. They state, that the evacuations were sooner completed, and that, along with their purgative properties, they have a diuretic action. Hooper, in his *Medical Dictionary*, has the following notice: "The bark, when fresh, has a moderately strong bitterish taste. It possesses resolvent and diuretic qualities, and has been successfully administered in the cure of intermittents. The seeds are occasionally exhibited as diuretics, in the dose of a drachm." The vermifuge action of the bark is mentioned by several authors, and Bergius says, "Sunt qui multum sperant de cortice fraxini, in lacte vel aqua cocto, adversus vermes, atque etiam contendunt, hunc corticem sæpe vermes pepulisse, ubi alia fefellerunt." (*Tomus ii.* p. 832. *Stockholmia*, 1778.) According to Martin-Solon, the decoction of the root is purgative and emetic. (*Bul. Gén. de Thérap.* i. 163.) Mérat and De Lens, in the *Dict. de Matière Médicale*, give the fullest notice which we have seen of the medicinal properties of the different parts of the ash. At the end of their article, the following authorities are cited: Schroer (J. C.) *Description du Frêne avec l'Enumération de ses Propriétés Médicales* (en Allemand), etc. Francfort-sur-l'Oder: 1700, in 8. Helvig (G.) *Diss. de Quinquina Europæorum, sive Cortice Fraxini*. Grypswaldiæ: 1712, in 4. Schreger (B. N. G.) *Diss. de Corticis Fraxini Excelsioris Naturæ et Viribus Medicis*. Lipsiæ: 1794, in 4. There is no reference to *fraxinus excelsior* in Woodville's *Medical Botany*; and Decandolle, Richard, Stephenson, Churchill, Duncan, and Pereira, make no mention of its medicinal properties.

Additional information is obviously required regarding the medicinal properties of the bark and leaves of the common ash. Can any of our readers contribute towards supplying this deficiency? Under certain circumstances, the leaves, it appears, are purgative, and in others astringent; this, and various points connected with the physiological effects produced on different organs, evidently demand experimental elucidation. The discrepancy of opinion among observers may be explained by the experiments having been made with leaves gathered at different seasons. Mérat (*Dict. de Mat. Méd.*) advises that the leaves be gathered when in full vigour, and carefully dried for winter use; but in summer they may be used green.—*Assoc. Med. Journ.* Jan. 7, 1853.

34. *On Tympanitis as a Special Symptom of Disease.*—Dr. HENRY KENNEDY read a paper on this subject before the Dublin Obstetrical Society. He divided the subject into the acute and chronic forms; and detailed a case of the latter occurring in a man, where a tumour in the abdomen from this cause was supposed to arise from organic disease. This tumour suddenly disappeared while the patient was in a bath.

He then entered at some length into the consideration of what he termed acute tympanitis, and showed that the presence of this sign, which could be so easily detected, was of much consequence in the treatment of all those diseases in which it occurred. Dr. Kennedy especially alluded to fever, erysipelas, diffuse inflammation, and puerperal fever; and at some length he proved that when it occurred in any one of these diseases, the proper line of treatment was the stimulant plan, to the exclusion of all bloodletting, and even mercury. In conclusion, he drew attention to a recent paper in Guy's *Hospital Reports*, where a series of *fatal* cases of puerperal fever were given, and in every one of which no other treatment but local bleedings with calomel and opium was used. He thought this sameness of treatment was one which might very fairly be called in question, and the results in the cases given spoke for themselves.—*Dublin Quarterly Journal*, February, 1853.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

35. *The Particulars of two Cases of Popliteal Aneurism treated by Compression, with some General Observations on that Plan of Treatment.*—By BENJAMIN PHILLIPS, F. R. S., Surgeon to the Westminster Hospital.—[It is well known to our readers that the treatment of aneurism by compression has been strongly advocated by the ablest surgeons in Dublin, while Mr. Syme and some of his contemporaries of Edinburgh denounce it, and claim superiority for the ligature. The London surgeons, though tardy in trying compression, seem to have become favourable to it; and since their attention was particularly drawn to it by Mr. Bellingham, during his visit to London last year, they have been induced to make more frequent trials of it. The following interesting cases, read before the Royal Medico-Chirurgical Society of London (Jan. 11), with the discussion to which it gave rise, will show the present state of opinion in London in regard to the subject. Though the report is a long one, the importance of the subject, we conceive, justifies our giving it entire.]

The author states that his objects in laying this paper before the Society are to procure a permanent record of perhaps a unique case—one of popliteal aneurism on each side in a female—and to obtain a deliberate consideration by the Society of the treatment of aneurism by compression. As a proof of the necessity for further deliberation on this subject, he refers to the different estimate of the general applicability of the remedy in Dublin, London, and Edinburgh. The author alludes to the want of some tribunal before which important questions should be brought and discussed, as is done in the Academy of Medicine at Paris, where a subject such as the present would be referred to a committee to report upon, and a discussion would take place on the report.

CASE I. Catherine C—, aged thirty-nine, a market-woman, tall and gaunt, was admitted into the Westminster Hospital on December 3, 1851, with a pulsating tumour in the right popliteal space. She had observed a stiffness about the right knee about two months before admission. She followed her occupation, and carried heavy loads on her head; but gradually the part became more painful, especially after her day's work. Three weeks before her admission, in getting into a cart the limb was stretched, and she felt something give way in the ham. The pain suddenly increased, and in two days extended to the ankle. Her habits of life were unfavourable; she was a confirmed gin-drinker, and she laboured under great nervous excitement and apprehension. The heart's action was most tumultuous, but no signs of disease could be detected along the course of the large internal vessels. There was a pulsating tumour in each popliteal space. That on the right side commenced in Hunter's canal, a little above the point where the artery enters into the popliteal space, and extended beyond the middle of that space. It could not be emptied by any amount of pressure. The tumour on the left side was situated lower down in the popliteal space; was smaller, and with less violent pulsation. The treatment was at first directed to her general condition: it consisted of a moderate diet, with abstinence from fluids; ice and ice-cold water were applied to the tumour. Under this plan she improved; and at the end of a fortnight it was determined to try the effects of moderate pressure on the side of the larger tumour. From her alarm at the sight of an instrument invented by the author, it was thought prudent to commence proceedings by means of a simple ring tourniquet, the pad being fixed near the apex of Scarpa's triangle. It was screwed tight enough to cause the pulsations to become imperceptible to the touch. At the end of two hours, the pain was so great that it became necessary to remove the pressure; and in place of the tourniquet a Signorini's compressor was applied at the groin. It slipped, however, after nearly three hours, but was reapplied for the night; but in the morning it was found to have slipped again. During the day and night, moderate pressure was kept up by means of the ring-tourniquet, the situation of which was altered from time to time, and this was continued during the suc-

ceeding day. The pulsation of the tumour had evidently lessened, the knee looked shining, and the leg was slightly cedematous. During the night, the author's compressor was used. Pressure was continued during the following day and night; the ring-tourniquet was used, and with slight intervals the pressure was continued for seven days longer, when the tumour was carefully examined; it felt more solid, and no whiz could be detected when all pressure was removed. The pressure was more or less steadily applied for twelve days more. At this time there was more fulness about the knee and ham; no whiz could be heard; but there was a general elevation of the mass, synchronous with the heart. After two days' interval, pressure was again applied, and continued at intervals for eleven days. It was believed, however, that the treatment had failed, and that the aneurism had become diffused; and, as a last chance, ligature was applied. She died on the seventeenth day after the operation; and, on examination, a clot was found extending from the ligature to the aneurism. The posterior ligament of the knee-joint was ulcerated, and the cavity of the joint contained sanguineo-purulent fluid. The aneurism in the left side appeared to consist of a fusiform dilatation of the artery, and contained concentric laminae of coagulated blood. There was a large aortic aneurism commencing below the origin of the coeliac axis. The aorta, and many other arteries, presented extensive fatty degeneration.

CASE II. George S—, aged thirty-one, a navigator, admitted July 8, with a popliteal aneurism of the size of a turkey's egg. It had begun six months before, from a strain. Six weeks after this, he observed a "knot" in the bend of the knee, which gradually increased to its present size. His health is good, and the circulating system tranquil. The characters of aneurism were very marked, and when firm pressure was applied on the artery, at the groin, the tumour disappeared. It was found that he had been treated by compression at the Reading Hospital, and the author was furnished with particulars of the case by Mr. Bulley; from which it appeared that pressure was applied for three weeks, by which the tumour became less, and lost its elastic feel. It was noticed that at night, when the pressure was entirely removed, the pulsation ceased; but that when it was reapplied the pulsation returned. Obstructive pressure was now applied for some time, but the man became impatient, and refused to allow any treatment. He was consequently discharged.

Although it appeared that a fair trial had been made, yet the author was induced to repeat the compression, and Dr. Carte saw the case, and aided the author with his instrument. The author here proceeds to describe the instrument. It was applied the 14th of July, and no pulsation could be detected in the tumour, which was completely emptied. The kind of pressure was varied, as well as the situation. In three days, it was noticed that the tumour could no longer be emptied, and that it contained coagula. The pressure was now continued; and, on the ninth day, the tumour was quite firm, and there was no pulsation in it. Since that time he has remained quite well.

After commenting on the different effects noticed at the Reading Hospital, and under his own treatment, the author adverts to the fact that authorities are still found in opposition to the treatment of aneurism by compression. It must, however, be judged of by its results; and if it be shown that more cases are cured by it than by ligature, it will ultimately be preferred. Mr. Syme's statement that he has tied the femoral twenty times without bad results, does not agree with the experience of this operation in the hands of others; and it appears, by reference to cases, that the failures amount to between one-third and one-fourth of the whole. The treatment by compression is far more favourable, its failures not exceeding one-fifth of the whole; and even when it fails the patient's life may be saved. The question, whether there are any objections to this mode of treatment so serious as to make the surgeon hesitate to employ it, is answered by the author in the negative; and he objects to Mr. Syme's description of the time employed and the pain to be endured under it, as not a fair statement of the case. He admits that cases have occurred where great suffering has attended the treatment by compression, but conceives that this is unnecessary, and is not the common result. It originated in a mistaken notion that it was necessary to stop the current of blood entirely, in order to effect a

cure. Mr. Todd did not think excessive pressure necessary; but those who followed him for some time acted on the opinion that what the ligature does must be done by compression. But it has been proved that an aneurism may be cured although the whole supply of blood be not completely cut off, even when the ligature has been used. The author maintains, then, that the surgeon is justified in adjusting the pressure to the enduring powers of the patient, rather than to the almost complete extinction of pulsation in the sac, provided the pressure be sufficient to produce a decided diminution in the force of the pulsation. As to the most eligible point for applying the pressure, he thinks it should be where it can be best borne, and where it occasions the smallest amount of inconvenience; and he does not think it of consequence that the pressure should be applied above the profunda. It is important, however, that the return of blood by the veins should be as little as possible interfered with, and for this reason he believes that the immediate neighbourhood of Poupart's ligament is the most desirable situation, while, at the same time, a smaller amount of pressure is necessary at that point. The author maintains that the pressure should be applied gradually, and not suddenly, so as to admit of the enlargement of the collateral vessels; and he thinks it is clearly established that continuous pressure is not absolutely necessary. The author sums up by saying that he is justified in asserting that pressure should be applied at points where it can be best borne, provided it be not too far removed from the sac; that, if possible, it should be so applied as not to prevent the return of venous blood; that it should be strong enough to produce a sensible influence on the strength of the pulsation in the tumour; and that it may be intermitted to a sufficient extent to make the treatment tolerable to the patient.

36. *Case of Popliteal Aneurism cured by Compression of the Femoral Artery at its Upper Third.*—By J. MONRO, M.D., Battalion Surgeon, Coldstream Guards. —This case, the author observes, is interesting from the fact which it proves, that a smaller amount of pressure than was formerly thought necessary will suffice for the cure of the disease. This being established, the chief difficulty in the steady application of pressure, the pain caused by it, is much lessened, the effects resulting from the undeveloped state of the anastomosing vessels are avoided, and a safer plan of treatment pursued, more especially when the tendency to arterial disease elsewhere in these cases is considered.

Drummer W. K——, aged twenty-three, of a spare and delicate habit of body, walked to the hospital on the 19th April, 1852. He complained of severe pain in the calf of the left leg, which was swollen, and the veins were dilated. Five days before, while playing at cricket, he was suddenly seized with pain, which obliged him to desist. He imagined he had met with a sprain. Although still suffering, he continued his duty; but to-day, being unable to go on any longer, he had come to the hospital. A large tumour, pulsating synchronously with the heart, was found to occupy the popliteal space. It was partially emptied by pressure, and returned to its former dimensions when that was removed. It expanded in every direction, and the bellows sound was heard. No other disease of the femoral or other artery was detected. The chest was free from disease, and the heart's action regular. He had suffered from time to time from slight catarrh and febrile attacks. He had been treated five times for venereal sores, but on one occasion only had taken mercury, and then but for ten or twelve days. After a little preparatory treatment, Mr. Phillips's instrument was applied, at first over the brim of the pelvis. The pressure could be borne only an hour and a half; it caused severe pain and feverishness. Believing that this arose in great measure from nervousness, the author employed manual pressure a little below the origin of the profunda. This was effected by the aid of several intelligent convalescents. The artery was compressed only to such a degree as to allow a feeble pulsation in the sac. For the first three days, this plan was followed for eight hours only during the day. The patient did not complain at all. There was no feverishness, nor increased oedema of the leg. The clamp tourniquet was now employed, but was removed each night; finding that it was well borne, it was kept on at night also from the 26th. On the 3d of May, the sac had become harder and smaller, the

articular arteries more developed, and the cedema of the calf less. On the 6th, the sac ceased to pulsate, and the tourniquet was removed. From this date the absorption of the contents of the sac went on rapidly, and he began to regain the use of his limb. In a short time, the measurement round the limb diminished from sixteen inches and a quarter to fourteen inches and one-third; the femoral artery was pervious. On the 2d July, he was dismissed to his duty, which he continued to do well till the beginning of November. Before that time his general health seemed worse. On the 19th November, he was again admitted, and an aneurism of the aorta was found near the coeliac axis. He complained of great pain in the loins and abdomen, coldness and numbness of the legs, faintness and nausea. On the 9th December, he seemed to be fast sinking, and died on the following day.

On *post-mortem* examination, the heart was found of usual size—somewhat flabby on the right side, but the texture sound; valves healthy; no disease of lining membrane; the aorta sound to the situation of the coeliac axis, between which and the superior mesenteric a rupture of its coats was found, and openings communicating with a large sac, of recent formation, and filled with coagula. It had burst in two places, and several pounds of blood were found in the cavity of the abdomen. The aneurismal limb was injected; the femoral and popliteal arteries were of natural size and pervious, until opposite the centre of the popliteal space; femoral vein pervious and healthy; the profunda and its branches enlarged; slight thickening all that remained of the sac; popliteal artery obliterated down to its division into the tibial arteries; popliteal vein also obliterated; the anterior tibial artery enlarged; the posterior of usual size; the peroneal larger than usual; muscular branches large; the ramus anastomoticus magnus three times its usual size, its branches anastomosing with the inferior articular recurrent tibial, and with each other. Two superior articular and an azygos, given off by a common trunk, just previous to the remains of the sac, anastomosed freely with the recurrent tibial and peroneal.

The recurrent tibial was as large as the radial, and anastomosed freely with the articulars and plexus in the peroneal nerve; a tortuous plexus in the substance of the popliteal and peroneal nerves, united below with a recurrent branch from the anterior and posterior tibial behind the head of the fibula; another branch from the azygos communicated with the recurrent branches behind the head of the fibula.

The communication between the external and internal articular was effected by branches three times their natural size; that between the anastomotica magna and inferior articular, between the recurrent tibial and superior articular by large branches.

37. *Discussion at the Royal Medical and Chirurgical Society relative to the Treatment of Aneurism by Pressure.*—The PRESIDENT, Mr. HODGSON, said that he quite agreed with Mr. Phillips in the opinion which he had expressed in his paper, that the treatment of aneurism by compression had not obtained that attention in England which its importance deserved, and which it had obtained in Ireland. The cause of this was probably the want of success which had followed this treatment in some cases in which it had been employed in this country; and the cause of this want of success he believed to have been a want of acquaintance with the true principles upon which this procedure produces the cure of the disease. It had been supposed that the pressure should be applied with sufficient force to place the sides of the artery at a distance from the disease in actual contact, so as to cause the obliteration of its cavity by the adhesive process, and thus to place it and the disease in the same condition as when a ligature is applied to an artery in the Hunterian operation for the cure of aneurism. Such, however, was not the case; for in four instances in which the parts had been examined after death, and in which aneurisms in the lower extremity had been cured by pressure—three of which he had had the opportunity of inspecting, it was found that the artery at the part to which the pressure had been applied exhibited no change from its normal condition. In these instances the artery, throughout its whole course to the seat of the aneurism, retained its natural caliber; there were no vestiges of inflammation in any

of its textures, nor in the surrounding parts; there was no adhesion of its sides, no plug, no contraction of its canal, and, in short, no appearance of its having been subjected to any kind of treatment. In some of these specimens, the aneurismal sac and the artery in the ham were filled with coagulum; in others, the sac only was filled with coagulum, and the circulation went on in the natural course of the artery. In Dr. Monro's case, which he had examined, the aneurism and the artery in the ham were obliterated; but above, where the pressure was applied, the artery was pervious and quite in its healthy condition. It was clear, therefore, from these facts, that the cure was not effected, at least in these instances, by producing adhesion between its sides and obliteration of the artery at the point where the pressure was applied. By what process, then, did compression cause the cure of the disease as effectually as the ligature of the vessel at a distance from the aneurism? From the recorded cases, especially from that communicated this evening by Dr. Monro, it was evident that moderate, but not "obstructive pressure," was that which was required. How did this act upon the artery? In addition to the three proper coats, which formerly were regarded as constituting an artery, modern histologists have demonstrated another texture, composing the inner portion of the middle or elastic coat, and, of course, situated between this elastic and the inner coats. In this texture resides the vital contractility of the vessel. Now, it appears that when an artery is subjected to any irritation, this vital contractility is brought into action. When an artery is torn, or violently stretched and elongated, or exposed to a chemical irritant, it is by the agency of this vital contractility that its caliber is diminished; and in extreme cases this sometimes happens to such an extent that its area even becomes completely closed. Compression is one of the agents by which this power may be brought into action, and he believed that it was in this manner that long-continued moderate pressure produced such a diminution in the volume of the stream passing through the main artery to the disease, if not the entire suppression of the current, as to cause those changes to take place in the aneurismal sac by which the cure of aneurism is effected, when a ligature is applied at a distance from the tumour. In his opinion, it was very important to keep this principle in view in adopting the means of treatment by compression; because, by a moderate degree of long-continued pressure, we should produce all the good effects required, whilst great pressure would produce great suffering, which could be borne, if at all, with extreme difficulty, and often with most injurious effects upon the parts to which it is applied. Ample experience had now proved that long-continued moderate pressure was all that was required to bring about the cure of the disease, and not such a degree of violent pressure as would mechanically prevent the flow of blood through the vessel. The latter idea had, he believed, caused the failure of this practice in many instances in which it had been employed; whilst in others, by causing sloughing, and inflammation, and obstruction in the great venous trunks, and serious engorgement of the limb, its continuance was from necessity abandoned. Many years ago, he had been engaged in some experiments on animals, in which attempts were made to procure the obliteration of arteries by powerful local pressure. In very few instances could this be accomplished; the sufferings which it produced were excessive, and generally it caused inflammation of the veins, and most injurious effects upon the surrounding parts. The President concluded by expressing a hope that some of the gentlemen present would give their views on the subject of compression.

Mr. FERGUSON, after a pause, rose and said that the circumstance of no one rising to address the meeting could not be from any want of interest in the subject, and he regretted that an older fellow than himself did not take the lead. He thought it a pity that so important a question should for the second time be passed over almost in silence in that Society, particularly after the interesting papers which had been read on the subject. The subject of compression in the treatment of aneurism was now attracting attention over the civilized world; and the surgeons in Dublin, Edinburgh, and elsewhere, where the plan had attracted much attention, naturally looked with some anxiety to what might fall from fellows of that Society upon the subject. He thought the surgeons present ought to give their opinion upon it. He (Mr. Ferguson) begged

leave to say that he accorded with the views of the Dublin surgeons in advocating the employment of pressure in such a way that, if it were general, would soon save any necessity for discussion upon it; for they not only brought forward arguments in its favour, but proofs, sufficient, in his opinion, to settle the matter. Thus, forty or fifty cases had been recorded by the well-known names of Tuffnell, Bellingham, &c., out of which only three or four had been unsuccessful. Now, in noticing the treatment of aneurism by ligature lately, he had occasion to state that, out of one hundred cases, sixteen had gone wrong. This fact alone was sufficient to show that compression should occupy the attention of every surgeon. In his opinion, the propriety of the operation, with respect to the lower extremity, was settled; but its applicability to the upper extremity involved a different question, for we could not apply compression there with the facility with which we could in the lower limbs. He thought Mr. Phillips and Dr. Monro entitled to something more than the usual form of thanks of the Society for their communications. It was worthy of note that, in Dr. Monro's case, pressure was kept up, under the surgeon's care, by that best of all compressors, the hand, for the space of three days; and this, he had no doubt, had had much influence on the favourable termination of the case. From his own (Mr. Fergusson's) experience of compression, and from the history of cases, he believed that both surgeons and patients were apt to despair too soon, and at a time when they should be full of hope and confidence. In one case, recorded by Mr. Phillips, this was well illustrated, Mr. Phillips having persevered with success, after another surgeon had given up the case in despair. He (Mr. Fergusson) had seen a case which had been under treatment for nine weeks, without apparently making any progress whatever; but symptoms of cure soon after manifested themselves, and success was ultimately complete. Mr. Hodgson had, in his remarks, raised one or two nice points for discussion. One was a suggestion thrown out with respect to pressure on the contractile coat of the artery. Now, without denying the influence claimed for it by so distinguished an authority as the President, he (Mr. Fergusson) should fancy that more depended really upon the pressure itself than on the influence of the contractile coat. Now, pressure would obstruct the current of blood about one-third, more or less; yet the pulsations would continue; that amount of pressure quieted the circulation, and to this more than to anything else he attributed the cure. In calling to mind some points in Dr. Monro's case, he recollected that the caliber of the artery, from the upper part of the superficial femoral to the popliteal, was fully as great as in health. This was a fact in favour of the cure being effected by pressure only. Another proof was the circumstance that all the compression necessary was that which would impede, but not completely obstruct the circulation. The same thing might take place in respect to a ligature, and it was only due to Mr. Wardrop to say that he had been the first to show that it was not necessary to entirely obstruct the circulation through the aneurism, but only to diminish it to such an extent as would give rise to the deposition of fibrine.

Dr. J. A. WILSON said: "When, in cases of popliteal aneurism, long-continued pressure of the femoral artery has been successfully employed, I should hesitate to explain the diminution of caliber in the compressed vessel by the hypothesis of an increased contractile energy in the artery at the part where compression has been made. I am inclined to consider such result as the effect of an impaired state of the general nutrition and special function of the arterial tube, under the disturbing influence of the long-continued pressure. Under this process of artificial structure, the close, active normal relation of the artery with its contained blood is no longer maintained, and the consequences of such altered relation in the blood's current are of necessity first experienced in the aneurismal sac; subsequently, it may be in a prejudice and partial interruption of the circulation through the smaller arterial divisions of the limb. On this view of the effect of long-continued pressure of the healthy upper arterial structure, in bringing about obliteration of the aneurismal sac, or prevention of its further development, the blood-current in contact with the compressed vessel is considered only a secondary agent in the change. From such violent interference with the complicated arterial functions, an effect necessarily fol-

lows on the force and volume of the blood's current through the compressed tube, with, as I believe, an incipient prejudice to the composition and delicate contractile properties of the blood itself; yet, such effect, if I am not in error, proceeds, in the first instance, from impaired nutrition and diminished contractile energy of the artery, which, however healthy and efficient in its structure and function, deteriorates, as an organ, from the first application of force by pressure to its self-adjusting tubercular cavity." He inquired the condition of the cellular tissue in Dr. Monro's cases.

Dr. Monro replied that there was no thickening of the cellular tissue external to the artery, the sheath being quite pervious.

Mr. CURLING had seen compression tried in two cases, and had come to the conclusion that more depended on the instruments employed than many supposed, and that very great care and attention to the case were necessary. In one case, which had been successful, in the London Hospital, the cure was mainly attributable to the great attention which Mr. Ward had paid to the case. Unless well managed, excoriation and sloughing readily followed the application of the pressure. In one of the cases, he had seen the proceeding fail from this cause. Even with moderate and well-sustained pressure success would not always follow, particularly in instances of very stout persons. He related two cases in which, from disease of arteries, a ligature could not be applied, and compression arrested hemorrhage after amputation. He had seen one case in which pressure upon the brachial had been successfully employed.

No one else rising to address the Society, Mr. PHILLIPS said that, before the discussion closed, he wished to make two or three observations. The object he had in view in bringing the paper forward was to determine, as far as possible, the benefits to be derived from compression; and whether we could do away with some of the inconveniences and difficulties which at present attend its employment. He could not help expressing his regret that more of the experienced surgeons present had not given their opinions upon the subject, so that it might be stamped with its true worth. He should, however, take it for granted, in the absence of any counter-statement, that compression should be continued to be employed, as at present, until further experience enabled us to arrive at a better plan, if such there was. Now, it was clear that the operation succeeded in more cases than the ligature, and that a great number of successful cases had been published. It was open to the objection, however, of being more tedious, painful, and difficult to bear than that by deligation. Now, he had wished to raise the question whether compression, applied with great care and improvement, might not be freed from that objection. He (Mr. Phillips) had set it down that a moderate degree of pressure only was necessary, and that this might be sometimes intermitted. If pressure, with this qualification, were long enough continued, success would generally attend its application. A cure could not, of course, be expected in all cases. It had failed in one of the instances related in his paper, in which the artery had given way in front. The Dublin surgeons said the operation always failed in such cases, whether ligature or compression were the means employed. He (Mr. Phillips) did not know on what grounds they formed this opinion; but, in his own case, the joint had been injured by the arterial disease. But was it always so in these cases? These exceptional instances, however, did not militate against the value of the operation as a general remedy. He had, therefore, now come to the conclusion that the smallest amount of pressure which would interrupt the flow of blood through the artery, kept up for a sufficient length of time, with occasional intermissions, would be well borne, and would cure aneurism.—*Lancet*, Jan. 22 and 29, 1853.

38. *Popliteal Aneurism cured in a short time by Compression of the principal Arterial Trunk.*—William G——, aged fifty-seven years, and a carpenter by trade, was admitted, Nov. 15, 1852, into Luke ward, under the care of Mr. Cock. The patient has exerted himself as much as is usual in his calling, but never imposed more fatigue on the right leg than the left. He is of high stature, robust, has always enjoyed good health, and been particularly temperate in his habits. He is of a quiet, contented disposition, and possesses an average

amount of intelligence. The man is married, has many children, and does not remember having injured either leg in the slightest degree; nor did the affection ever exist in the family. Three months before admission, the patient's right thigh and leg pained him much for a few days, and he was under the impression that the pain was seated in the bone. This attack did not last long, and the patient soon thought no more of it, until one month afterwards, when he noticed a little lump in the popliteal space, of the size of a plum. Pulsations were then distinct, but much fainter than they subsequently became. No actual pain was experienced, but the tumour for the next two months became gradually larger, though the patient was never prevented from walking as usual, going even great distances without inconvenience.

On admission, the patient's state was the following: There is a strongly pulsating tumour, partly in the right popliteal space, and partly lower down towards the gastrocnemius muscle. The swelling begins above, in the popliteal space, opposite to the upper border of the patella and ends below, on a level with the tubercle of the tibia. The tumour is round, and about the size of a turkey's egg; it pulsates strongly, and presents, on auscultation, a strong bruit. The chest, on careful exploration, does not yield any evidence of thoracic aneurism. The tumour feels yielding and elastic, and the hand placed upon it receives a sensation as if the vessel were dilated more towards the inner than the outer side.

Mr. Cock, after considering all the symptoms of the case, and giving due regard to the constitution, health, temper, &c. of the patient, resolved to give compression a fair trial, and used a clamp lately modified by Mr. Bigg, to which the latter has given the name of "Bigg's aneurismal compressor." The instrument may be described as follows:—

A semicircle of steel, with anterior and posterior movable arms, the anterior containing the screw and pad to rest on the artery, the posterior holding the hinged cushion or splint, on which the limb is placed. When the instrument is applied, the pad is screwed down so as to *gently* compress the artery. The centre screw is then turned to direct the pad inwards, and fix the artery between it and the bone. The lower screw, placed beneath the cushion, raises the outer edge of the splint, and prevents the instrument moving in the slightest degree. The advantage of this instrument seemed to us to consist principally in giving the pad a direction inwards towards the bone and in completely securing the limb by a good broad splint, which may, by a screw placed beneath it, be brought in closer contact with the thigh.

Mr. Cock expressed himself greatly pleased with the manner in which this clamp acted all through the case.

The compression was begun Nov. 24, and regularly continued to Dec. 10, making just sixteen days. The pulsations ceased five days before the apparatus was completely left off; but it was thought advisable to continue the pressure, so as to insure the due establishment of the collateral circulation. The tumour was on the day of the patient's discharge (Dec. 22, 1852, thirty-seven days after admission) just half its original bulk, and presenting a great degree of hardness. The pressure was kept up with great regularity and patience during the whole of the above-mentioned period; the weight at the groin being substituted for the clamp when the latter was getting too irksome. The patient slept very little for a whole week, as he was anxious to keep up the pressure in the most exact manner; and he was fully rewarded for his close adherence to Mr. Cock's directions, by the speedy solidification of the sac and obliteration of the artery.

When the apparatus had been completely removed, the leg was tightly and evenly secured by a roller; and when the patient first attempted to walk, he felt the leg rather weak, but all pain in the limb had quite disappeared. He finally left the hospital Dec. 22, 1852, with the tumour quite solid, and the complete obliteration of the artery.

This is certainly a most satisfactory result of compression in the treatment of aneurism, and likely to make a lasting impression on all those surgeons who saw the case. Of course, the patient may be looked upon as a very favourable subject for this kind of treatment; but it is very likely that, even with nervous and irritable patients, a course of sedative medicines, and proper warning that

the success depends on perfect obedience and perseverance, would very probably have a beneficial effect, and facilitate the successful application of compression.—*Lancet*, Jan. 8, 1853.

39. *Case of large Axillary Aneurism, in which the Subclavian Artery was successfully Tied.*—BARNARD HOLT, Esq., read the following interesting case before the Royal Medical and Chirurgical Society (Jan. 25, 1853).

ROBERT H—, aged thirty, was admitted into the Westminster Hospital, May 23, 1851, with an axillary tumour, apparently fungoid. Five weeks previously he felt slight pain in the right axilla, and detected a small, hard, and apparently glandular swelling. He consulted Mr. James, of Uxbridge, who diagnosed the case to be abscess, and treated it accordingly. After a week, he was admitted into the Uxbridge Union, under the care of Mr. Rayner, who took a similar view of the case. The tumour had now increased, the patient complained of throbbing pain, and he had had two or three distinct rigors. Seven days after admission the tumour was much enlarged, and the skin discoloured; and these symptoms having increased, Mr. Rayner, at the solicitation of the patient, punctured the tumour with a lancet, when a small quantity of blood only escaped. A suspicion was now entertained that the case might be one of aneurism; but on consultation, as no further evidence in favour of this view existed, it was considered that the previous opinion was correct, and the treatment was continued. Five weeks after the appearance of the tumour, profuse hemorrhage took place, but ceased before Mr. Rayner arrived. He then thought he could detect a *bruit de soufflet*; and on this being confirmed, the patient was sent to the Westminster Hospital. At this time, the patient presented an exsanguineous, unhealthy, and anxious aspect; tongue clean and moist; skin warm and perspiring; eyes glassy; pulse 96, and hard; appetite bad; bowels moderately regular. The swelling was about the size of an ostrich-egg, nodulated, and communicating a spongy feeling to the touch. No fluid could be detected, but there was the elastic feeling usually accompanying malignant disease. The pain was intense and lancinating. The hand and arm were cedematous, and could not be brought to the side; movement was difficult; no bruit or pulsation could be detected. A grooved needle was introduced, but only a small quantity of grumous blood escaped. Seven days after admission, the tumour was more dense, its elasticity was nearly gone; the arm was more cedematous, and the radial beat more feebly than on the opposite side. A fortnight afterwards, the tumour was greatly enlarged, was now uniform and elastic, and an indistinct bruit and pulsation could be detected. On consultation, it was agreed that the tumour was aneurismal. The bruit and pulsation had become more distinct, and it was decided that the operation of tying the subclavian artery should be performed. On the 18th of June, the day previous to the operation, the tumour had increased, the pulsations were uniform and distinct, and a moderately loud bruit could be heard all over the surface; the arm swollen, tense, and painful, widely separated from the side; the clavicle pushed upwards and backwards, so as to describe an obtuse angle with the sternum; the artery could be commanded by pressure above the clavicle. On the 19th, the patient being seated in a chair, the integument was drawn over the clavicle, and an incision made the whole length of and upon that bone. The skin being now permitted to resume its original position, the incision, of between four and five inches in length, was situated immediately above the clavicle. The deep cervical fascia was cautiously divided to the same extent. On careful dissection of the cellular tissue, the brachial plexus was exposed. A branch being mistaken for the artery was raised on the needle, but as pressure on it did not command the circulation, the artery was again sought for, which was felt feebly beating under the plexus of nerves, which lay in front and covered it. A ligature was put round it, and the circulation completely commanded. The patient now suddenly became very faint, and his breathing embarrassed; he was laid on the floor, and water dashed on his face, when he soon recovered. No unfavourable symptoms ensued after the operation. On the 8th of July the ligature came away. At this time the tumour had decreased one-half, and a feeble pulsation could for the first time be detected in the radial

artery. A few days afterwards, the tumour was somewhat large, and as it did not again decrease, the diet was reduced and ice applied. From that time the tumour gradually diminished. On the 24th of December, the tumour was so far reduced as to admit of his return to the country; he could move his arm nearly as easily as the other, and the cedema had entirely subsided.

The author then remarks on the difficulties sometimes experienced in forming a correct diagnosis between fungoid and aneurismal tumours. In the present case the tumour had at first been taken for abscess; and it was not until the hemorrhage took place that its aneurismal character was suspected. When first seen by the author, the sac was again so distended as to mask the previous signs; and the history and appearance of the tumour favoured the idea of its malignancy, which was, however, contradicted by the subsequent improvement in the health of the patient, and the slow increase in the tumour. The size was remarkable, measuring nine inches and a half from the clavicle to the centre of the axillary portion of the tumour, and five inches from the arm to the side of the chest. The surrounding structures were materially displaced, and the clavicle elevated, thus deepening the space between the integument and the artery, and apparently offering a serious obstacle to the facility of placing a ligature on it; indeed, when the parts had nearly resumed their normal relation, the cicatrix more resembled that arising from ligature of the carotid, than of the subclavian.—*Lancet*, Feb. 5, 1853.

40. *Suggestions for facilitating the Exposition of Arteries, and the Application of the Ligature.* By WM. HARGRAVE, Professor of Surgery in Royal College of Surgeons, Ireland, &c.—Some practitioners will consider it a useless question to ask, and a waste of letterpress to print, what is the best direction to be given to the incisions required for securing an artery? and, if possible, to lay down fixed principles for these operations. For some sessions past, in my lectures on operative surgery, I have always advocated and demonstrated to the class a different mode of proceeding from that laid down in books. Though so many works on surgery have issued of late from the press, this most important practical point seems to me not as yet definitively settled, as it is capable of being done, especially for the junior practitioner. The only author that I am aware of who has touched upon a change in this practice is Mr. Skey, which meets my full concurrence.

Most surgeons still cling to the rule of cutting parallel to the course of the artery, seldom or never deviating from it; and, if they do, act doubtfully and with hesitation.

From an attentive consideration of this most practical proceeding, I would lay it down as a rule that the incisions parallel to the artery generally should be the exception, while incisions transverse or oblique to the vessel should almost always be the rule. By the adoption of the latter, the surgeon will be able to find the vessel with more ease and certainty to himself, and to encircle it with the ligature with greater prospect of success to the well-doing of the operation.

I am well aware that I am not advocating a totally new proceeding in practice, as Scarpa, Dupuytren, and Guthrie have advised it in some instances; and I have performed such an operation on the left common carotid with every facility to myself. My colleague, Mr. Porter, has also occasionally deviated from this practice. This question can be best met by stating the disadvantages of making the incisions parallel to the artery: 1st. The slightest deviation from its course will lead the surgeon astray, going either to the external or to the internal side of the vessel; and unless he corrects his mistake on the instant, the operation will be tedious and unsatisfactory, calling for the use of retractors, and requiring excessive manipulations of the wound to find the vessel, and may even fail *in toto*, as has occurred more than once in practice. 2d. If two vessels happen to run parallel to each other, as often occurs in the arm, and sometimes below Poupart's ligament, more difficulty will attend their being exposed, and distinguished one from the other, than by the adoption of a different course to the incision. 3d. The operation does not appear to me to be facilitated by such a line of incision.

What advantages follow a transverse or oblique incision? 1st. No doubt exists but that the vessel will present itself in some part of the wound, and a retractor is seldom required. 2d. If two vessels run together, greater facility will attend the distinguishing of one from the other, and securing the artery which is the subject of the operation. 3d. It is an operation more generally fitted for the profession than the first one, as it does not require so much dexterity or great knowledge of anatomy. 4th. If much adipose substance exists, it will render the operation more satisfactory and certain.

It can be objected to the practice now advocated, that in some instances the muscles must be cut across. This matters but little; for, when the patient recovers, such are the compensating powers inherent in the animal economy, that no permanent injury will arise from such a lesion.

To enumerate the operations in which a transverse or oblique incision is valuable to expose an artery and to secure it, the following will prove its efficacy: 1st. The common carotid: it is only necessary to test this operation either on the dead or on the living, when the superiority of this practice will be admitted; and will permit the surgeon to insulate the artery in the readiest manner from the veins and nerves which run so close and parallel to it; in fact, a free gaping wound is the result of the section of the sterno-mastoid muscle, and all the parts at the fundus of the wound are visible; it is an operation well adapted for children,¹ and those with short necks. 2d. The occipital artery, where it is uncovered by the mastoid muscle, or in the posterior third of its course, is most readily laid bare by an incision transverse to its course, or parallel to the posterior edge of that muscle in its third stage. 3d. The external maxillary, as it passes over the ramus of the jaw, can be more readily exposed by an oblique incision than one that is made parallel to its course, and thus affords a ready facility for securing it. 4th. The lingual artery is also most effectively denuded by an incision oblique to its direction, which brings into view in their anatomical relations the digastric tendon, the lingual nerve, and then the artery; all three presenting nearly the same colour, but practically distinguished from each other by their never-varying relations. 5th. The subclavian, immediately above the clavicle, is exposed by the incision being oblique, if not transverse, to the direction of the vessel. 6th. By dividing the pectoralis major muscle across—i. e., from the clavicle to the axillary border *in the course of the artery*, one of the most valuable operations in surgery is given to the profession to secure this vessel, if wounded in any part of its course, from the clavicle to the axilla, and to tie it both above and below the injury. This valuable operation is an exception to the rules now laid down, being parallel to the course of the artery. 7th. An oblique incision for exposing the humeral artery will enable the surgeon more readily to find this vessel, and to distinguish between the frequent irregularities so often found in this portion of the vascular system, and which always greatly embarrass the operator. 8th. The same line of incision will facilitate the operations for the radial and ulnar arteries. 9th. The internal mammary, if it is considered advisable to secure it, will be most expeditiously laid bare by marking well the course of the artery and cutting parallel to the ribs in the intercostal space, and dividing the superimposed structures carefully, till the artery is exposed; this proceeding affords more ease in finding the vessel, and involves less risk of wounding the costal pleura than the operation proposed by M. Goyrand, which, from his directions, makes the incision run parallel to the course of the artery; if any deviation takes place, the artery is not easily found, and more danger is incurred in wounding the pleura costalis. (*Lancette Francaise*, 1834.) 10th. The facility with which the internal epigastric artery is exposed and secured by indicating its course, and dividing the coverings placed upon it, parallel to and above Poupart's ligament; or, in other words, transverse to the course of the vessel, leaves nothing to be desired in this operation. 11th. The external iliac, either by Abernethy's or Cooper's operation, is laid bare more or less transverse to its course; while the internal one is also similarly presented to the surgeon. 12th. The gluteal artery, as it lies external to the pelvic cavity, notwithstanding the

¹ See Quart. Journ. of Med. Sci. Aug. 1849, No. xv.

great coverings it has from such thick and powerful muscles as the gluteals, can be always laid bare by attention to the following rules, which I might say are founded upon the immutable formation of the osseous system: mark the distance between the posterior-inferior spine of the ilium, and the external surface of the great trochanter, the subject having been previously placed upon the abdominal surface, the inferior extremity extended and rotated outwards, divide this space into three equal parts; at the point where the inner third meets the commencement of the middle third, the artery will be found with mathematical accuracy. Next, as to the manner for exposing it; let this point be the centre of the incision, which is to be made transverse to the course of the muscles, when the artery will be found at a great depth in a space formed superiorly by the notch of the ilium, and subtended inferiorly by the pyriformis muscle; in this operation retractors are absolutely necessary. 13th. The common femoral, if considered advisable, can be exposed and secured with great facility immediately below Poupart's ligament by an incision parallel to it, when the artery can be insulated from the vein without any disturbance to it. My colleagues in the School of Surgery, Mr. Porter, has performed this operation, and reports very favourably of the facility afforded by it. 14th. Superficial femoral artery: a certain obliquity to the incision for securing this artery in the first, second, and third stages of its course, will be the means of rendering the operation more perfect, as far as the exposure of the vessel is concerned in it. 15th. The anterior tibial: to bring into view the intermuscular space, at the bottom of which this vessel descends to the foot, a line parallel to the external edge of the tibialis anticus muscle, though oblique to the axis of the limb, is parallel to the course of the artery; hence it will be found more judicious as an operative proceeding to make it a little more oblique than is usually practiced, by which a greater certainty will be had of entering the intermuscular space, and then to find the artery. 16th. The artery on the dorsum of the foot, though the tendon of the *extensus pollicis longus* indicates very accurately the course of the vessel, yet, as it occasionally runs more external to this tendon, by giving it a slight degree of obliquity, it will not only bring us into contact with the artery, but also enable us to be prepared for this deviation from the natural course of the vessel. 17th. Popliteal artery: an oblique incision downwards and inwards will permit the operator to expose the vessel, and to insulate it better from the accompanying nerve and vein, than when parallelism of the incision to the artery is made the rule for the operation. 18th. Posterior tibial artery: as regards the middle and inferior third of the leg, the same principle in the operative proceeding, so frequently inculcated in this communication, will render the proceeding simple, safe, and in most instances, expeditious. Should the surgeon be called on to cut down on the posterior tibial artery in the upper third of its course, by making his incision oblique, though the saphena minor vein and the communicans tibialis nerve will be divided as lying in the centre of the incision, still, this lesion will be more than compensated for by the retraction of the gastrocnemius and solæus muscles, which must facilitate the exposure of the artery at so great a depth at which it lies in this situation from the surface.

In conclusion, to recapitulate the arteries on which this operation is of such utility: 1st, the temporal; 2d, the occipital in its third stage; 3d, external maxillary artery; 4th, lingual; 5th, carotid; 6th, subclavian; 7th, axillary; 8th, brachial; 9th, ulnar; 10th, radial; 11th, internal mammary; 12th, internal epigastric; 13th, external iliac artery; 14th, internal iliac artery; 15th, gluteal artery; 16th, femoral artery; 17th, popliteal artery; 18th, anterior tibial artery; 19th, posterior tibial artery; 20th, dorsalis pedis artery.—*Dublin Medical Press*, Feb. 2, 1853.

41. *On the Solution of Urinary Calculi in Dilute Saline Solutions, at the Temperature of the Body, by the Aid of Electricity.*—Dr. H. BENCE JONES recently read a paper on this subject before the Royal Society, containing the record of a number of experiments made to determine whether, out of the body, urinary calculi could be dissolved by placing them in dilute solutions of nitrate of potash and other salts, and then decomposing the solution in contact with the calculus by means of the galvanic battery. The urinary calculus was carefully

dried and weighed, then fixed between the poles of a galvanic battery, after which it was immersed in a solution of nitre, and at the end of the experiment it was redried and reweighed. The loss of weight gave the effect which was produced. The different calculi which had been used were also exhibited, showing the different degrees in which the various kinds of urinary calculi are dissolved when submitted to this treatment. The conclusions at which the author arrived may be thus stated: In a solution of nitre containing 20 grains to the ounce, kept at the temperature of the body, uric acid calculi can be dissolved by the aid of electricity, at the rate of from 2 to 9 grains an hour. The solution takes place at the alkaline or negative pole. In the same time, and under the same circumstances, phosphatic calculi can be dissolved at the rate of from 2 to 25 grains. The solution takes place at the acid or positive pole. Calculi, consisting of oxalate of lime, proved to be far less soluble, usually not more than half a grain an hour, and at most 2 grains being dissolved. At the conclusion of the reading of the paper, the author stated that he had been engaged in making further experiments with a solution of nitrate of potash containing only 10 grains to the ounce; and he exhibited some large uric acid and phosphatic calculi, which had been partially dissolved by the decomposition of this solution at the surface of the calculi. He also showed a catheter or litholyte, made by Weiss, which fulfilled the conditions requisite in an instrument for effecting the solution of urinary calculi in the body. It resembled an ordinary lithotrite, but the blades were—1st, isolated so as to conduct the electricity to the surface of the stone when it had been caught; 2dly, the external surfaces of the blades were guarded, so that in case they came in contact with the mucous membrane, no chemical action would be there set up; 3dly, a double channel for the injection of the solution of nitre was formed inside the instrument. Lastly, the author stated that although many difficulties would have doubtless to be overcome before he could lay the result of his experiments within the body before the Society, still, they would only be mechanical difficulties. The principle, which consisted in setting up mechanical action at the spot where it was wanted, whilst elsewhere a dilute neutral solution was present, left nothing further to be desired; at least so far as the solution of uric and phosphatic calculi was concerned. At present, by the aid of the lithotrite, mechanical force is applied to the surface of the calculus, and the stone is passed in fragments. At some future time, by the aid of the litholyte, chemical force will be set up at the surface of the calculus, and it will be passed in solution, or as an impalpable precipitate.—*Medical Times and Gazette*, January 1, 1853.

42. *Strangulated Inguinal Hernia*.—The *Medical Times and Gazette* (Feb. 19, 1853), contains reports of two cases of strangulated inguinal hernia in patients at periods of life very unusual for such an occurrence. The first was in a boy only twenty-one months old, admitted into the London Hospital, with strangulated inguinal hernia on the right side. All efforts at reduction by taxis failed, even under the influence of chloroform, and Mr. Curling cut down upon the sac. Still, the gut could not be returned, and then a small incision was made in the sac at its upper part, in doing which, the fibres constituting the stricture appeared to have been divided, for the bowel at once returned without difficulty. The patient made a satisfactory recovery.

The subject of the second case was a lad sixteen years of age, admitted into St. Thomas's Hospital, for strangulated hernia of the right side. The operation was performed by Mr. Solly, and presented no unusual feature. Recovery was rapid.

43. *Fibro-plastic Tumours*.—M. LEBERT, the author of the well-known work on Cancer, lately read a paper before the Surgical Society of Paris, on Fibro-plastic Tumours. The principal facts and conclusions brought forward by M. Lebert are the following:—

1. Fibro-plastic tumours are composed of a cellular texture of new formation, similar to that seen in embryonic life. Fibro-plastic tissue may have an inflammatory origin, it may be the result of hypertrophy, or arise quite spontaneously.

2. Fibro-plastic tumours are made up of a soft lobulated tissue, of a pinkish yellow; or else of a firmer texture, of a pale hue, and more homogeneous; or, finally, of a mixture of a gelatiniform substance with the two structures just mentioned. These tumours are situated in the skin, or the subcutaneous areolar tissue; they may be buried in the depth of the muscular masses of a limb, especially the thigh; or else they may spring up in bone, a favourite seat being the jaws; or, finally, they may grow upon the meninges.

3. Fibro-plastic tumours present the same characters in man and in domestic animals.

4. The fibro-plastic texture, which owes its origin to inflammation, has a marked tendency to fibrous transformation; it is often met with in protracted inflammations, of which it is at the same time the support and the product.

5. Fibro-plastic tumours present either a smooth or lobulated surface, and are either globular or flattened, according to their seat, and in cases of hypertrophy they assume the shape of the affected organ. They are generally free and well-defined, but when springing from bone they are sessile, and look like excrescences.

6. These tumours may become very large, both in glandular organs and when seated on limbs, especially when they contain much gelatiniform tissue. They are generally surrounded by a fibro-cellular envelope. When a section is made in a recent case, the liquid obtained is clear and transparent; but it is sometimes thick and dull, when flocculi or entire lobuli are suspended in it. Besides the textures above mentioned, there is sometimes found in the tumours a substance of a pale yellow, and quite dull; sometimes calcareous concretions are found, or else osseous radiations, when the disease begun in the periosteum.

7. Under the microscope, cells with small, rounded, or ovoid nuclei are seen; and all the forms intermediate between the cell and common fibre, especially a great many narrow fusiform bodies; the nucleoli are always very small. There are also perceived original cells with compound nuclei rolled up together, and sometimes fusiform nuclei which then constitute fibro-plastic masses.

8. As regards neighbouring textures, fibro-plastic tumours grow like fibrous tumours, as they press upon these textures without taking their place; whilst cancerous tumours substitute themselves in neighbouring parts. Fibro-plastic tumours follow, as to their growth, the following development: There is first a local deposit; the increase is then slow, but soon becomes rapid; phlegmasia takes place; then come hemorrhage, partial calcification, softening, the formation of cysts, partial ossification, ulceration, and then, in exceptional cases, sloughing.

9. Both sexes are obnoxious to these tumours; they are seen at all ages; but they arise more frequently between thirty-five and fifty years.

10. Recurrence after operation takes place, especially in autogeneous tumours, and has not been observed in fibro-plastic hypertrophy; recurrence is not observed, as in cancer, to arise in distant organs, though it is often caused by an incomplete operation. Notwithstanding the occasional pertinacity of fibro-plastic tumours to recur in the cicatrix, they are not found to injure the general health. In very rare cases, a kind of fibro-plastic diathesis becomes established; this fact has, however, been observed with fibrous, adipose, neuromatous, and melanotic tumours.

11. Singleness and a strictly local nature have been observed as a rule in fibro-plastic tumours. This fact is proved by twenty-six carefully conducted autopsies of cases in which the disease had reached its natural termination, and also by a considerable number of perfect and permanent cures after operation; whilst no such cures are known to exist respecting true cancer.

12. Fibro-plastic tumours have a much more chronic character than cancerous tumours; and save a few cases of very rapid growth, it may be said that fibro-plastic tumours, when they become fatal, last rather more than between five and ten years; whilst the natural duration of cancer is from two to two years and a half. Cases have even been known, and are not rare, in which fibro-plastic tumours have lasted twenty years and more, without much inconvenience. It should, however, be mentioned that these tumours, after a very slow progress, have rapidly assumed a very serious character.

13. Pain is very rarely acute and permanent, and is mostly, as in other tumours, of a neuralgic kind. Functional disturbance depends principally on the seat of the tumour. The general health, in the great majority of cases, remains undisturbed, except in the very rare cases of general fibro-plastic infection, or those in which the local affection has ended in extensive ulceration.

14. The prognosis of fibro-plastic tumours is much more favourable than that of cancer. Curability is the rule. The fibro-plastic texture of inflammatory origin is the more likely to be benign the more it shows a tendency to assume a fibrous character. The prognosis is, in fibro-plastic hypertrophy, likewise favourable. In fact, these tumours constitute a local affection little or not at all likely to recur, which can only become dangerous in so far as its seat, extent, or amount of ulceration are concerned. Kelis is likewise an affection of a simple kind, notwithstanding its pertinacity regarding recurrence in the cicatrix after operation. Fibro-plastic tumours of spontaneous origin are very likely to recur after excision, when they are situated on the tegumentary surface, under the skin, or in the bones. The surgeon should always bear in mind the possibility of general infection, only, however, as an occasional occurrence, but not as a probability. Fibro-plastic tumours seated in the meninges destroy the patient by interfering with the functions of the brain, though remaining all the while a perfectly local affection.

15. The treatment of these tumours should begin with the prolonged use of preparations of iodine, when the origin is of a syphilitic nature, or when the tumour is simply owing to hypertrophy. When an operation is necessary, it should consist, as a rule, of complete extirpation; strong caustics should be tried with superficial tumours of small dimension. Operations in such cases should always be performed boldly, whether the knife be carried into soft parts, or whether the affection be seated in bone. Amputation should be performed when the tumour is situated in the depth of the limb, and the former sends prolongations into parts where dissection is difficult.

Autoplasty should be used to substitute healthy tissue to cicatrices likely to favour recurrence, in operations of a moderate extent, and the tumour is seated on the surface. The actual cautery is necessary when superficial tumours are too extensive to admit of autoplasty.

It is finally advisable to use iodine *after* operations, as a prophylactic means against recurrence or general infection.—*Lancet*, Feb. 26, 1853.

44. *Relapse of Cancer.*—M. BROCA, in a prize essay on the Pathological Anatomy of Cancer, published in the sixteenth volume of *Memoirs of the French Academy of Medicine*, adds some illustrations to the melancholy chapter of relapse of cancer, which he regards as of nearly constant occurrence. Among the patients operated upon by Blandin, in 1847 and 1848, there were 69 who furnished tumours, most of which, prior to the employment of the microscope, would have been regarded as cancerous. On examination, 2 proved to be fibro-colloid, 5 fibro-plastic, 15 epithelial, and 6 partial mammary hypertrophy. Of 39 really cancerous patients, 11 died from the consequences of the operation, and 28 survived these. Of these last, 19 were kept in view, and every one of them had relapse, 16 within the first year, 2 in the course of the second, and the last at the end of the twenty-fifth month. By the beginning of 1850, 17 were dead, and the other two were expected soon to follow them.—*Brit. and For. Med.-Chirurgical Review*, Jan. 1853.

45. *Researches on the Synovial Cysts of the Hand and Wrist.*—M. GOSSELIN, in an interesting memoir in the sixteenth volume of the *Memoirs of the French Academy of Medicine*, relates the results of his anatomical researches, made in the attempt at clearing up some of the confusion and contradictions that have prevailed in the description of these tumours. Confounded formerly under the general name of *ganglion*, these swellings have been, of late, distinguished by most writers accordingly as they have occupied the track of the flexor tendons of the palm, or the extensors at the back of the wrists. The distinction is, indeed, an essential one, for in the former case (*dropical cysts*), an entire synovial bursa is involved, while in the latter (*partial or ganglionic cysts*), a very

circumscribed portion of the synovial membrane is concerned. The object of this paper is to determine the anatomical limits and connections of the first of these, and the mode of formation of the second.

1. *Dropsical Cysts of the Palm*.—Authors have varied much in the descriptions they have given of the direction and number of the synovial membranes accompanying the flexor tendons; and the dissection of more than sixty hands, in both children and adults, enables M. Gosselin to account for this discrepancy by the varieties of distribution which actually prevail. Amidst these there is, however, a regular disposition observed in the majority of cases, and met with in the foetus, children and women not accustomed to manual labour. There are two synovial membranes, which, taking their origin a little above the annular ligament, are continued, the one to the second phalanx of the thumb, and the other to the second phalanx of the little finger. The first of these is reflected from the level of the carpus around the tendon of the flexor proprius of the thumb. The internal one is reflected on to the tendons of the flexors of the little and ring fingers, extending to a much less length along the latter. The tendons of the index and medius fingers are unprovided with these bursæ, and may be separated without opening either the outer or inner synovial cavity. Normally, these two cavities do not communicate, but an occasional variety is met with in which they do. A more frequent variety consists in the presence of a supernumerary sac, placed between the two others, above the annular ligament, and not unfrequently communicating with one of them, especially the internal. In the course of the prolongation of the internal cavity, it normally undergoes a narrowing at about midway of its course, and a not unfrequent variety is found in its becoming obliterated at this point. As a fourth variety, may be noticed the presence of small, isolated, synovial sheaths, distinct from the others, formed from the cellular tissue of the superficial tendons. Thus, normally, there are two synovial cavities in this locality; and when authors have described more, they have been alluding to some of these varieties. We see also why, as a result of chronic inflammation, the little and ring fingers are those especially liable to become contracted.

2. *Ganglionic or Partial Synovial Cysts*.—M. Gosselin has nothing new to communicate respecting the symptoms or treatment of these ganglions, so often met with at the back of the wrist, his object being merely to draw attention to their mode of origin. After adverting to the different explanations of this, hazarded by prior writers, he states that he has been led to offer a new one, by having observed, in a great number of radio-carpal joints he has examined, immediately beneath the synovial membrane, behind the semilunar and scaphoid bones, certain whitish or grayish corpuscles, varying in size from that of a millet-seed to that of a pea. Some of these slightly project into the articulation, but, in most cases, concealed in the sub-synovial cellular tissue, they are only brought into view by the careful removal of the synovial membrane, to which they somewhat firmly adhere. Usually, they do not communicate with the joints, no orifice being discernible; and their contents, which resemble those of ganglions, only issue out upon incision. These *sub-synovial* bodies are also met with in the medio-carpal joints, but much more rarely. Whether viewed as to their *locale* or their contents, these bodies must be regarded as exhibiting the earliest stage of ganglionic formations; and the frequency of their existence, and regularity of their position, lead to the inference that they are modifications of a natural disposition. Additional researches have brought M. Gosselin to the conclusion that all the articular synovial membranes (and especially those of the wrist) are provided with prolongations, or *culs de sac*, which may be called *synoviparous crypts* or *follicles*, and that the obliteration of the orifice of these crypts gives rise to the accumulation of synovia. The crypts are, indeed, but one of the means employed for extending the synovial secreting surface; and in some instances they communicate with the general cavity by broad, and in others by very minute openings, the latter being liable to this obstruction. Velpeau and the Webers have, indeed, adverted to these synovial prolongations, but they have not generalized their descriptions, or made the pathological application. These crypts are to be found in all the principal articulations; and in the horse these follicles and their communicat-

ing orifices are found on a much larger scale. Taking this general view of them, the conclusion becomes irresistible, that these depressions of the synovial membranes are means for the enlargement of surface analogous to the single follicles of the skin and mucous membranes. The reason why the orifices of these follicles of the wrist-joint should so especially become obliterated, and give rise to ganglions, is not to be ascertained any more than that of the greater frequency of sebaceous cysts in certain regions of the skin. The sub-synovial bodies thus produced may remain stationary, their outward progress being opposed by the aponeuroses which surround them; or they may increase towards the cavity of the joint, into which they may at last burst. If the aponeurotic resistance is less decided, or in part destroyed, the bodies make their way towards the surface under the form of *ganglions*. M. Gosselin has been unable to observe any of the synoviparous follicles in the sheaths and bursæ of the tendons; and it is therefore a highly important fact, in a practical point of view, that the ganglions are in communication, not with these sheaths, but with the joint itself, into which, indeed, they sometimes, at an advanced period, discharge themselves.—*Brit. and For. Med.-Chirurg. Review*, Jan. 1853.

46. *Inflammatory and Non-inflammatory Ruptures of Ovarian Dropsical Cysts*.—Professor J. Y. Simpson has published (*Monthly Journ. of Med. Sci.* Dec. 1852) some interesting observations on this subject. The following are his conclusions:—

1. The cysts forming an ovarian dropsy, occasionally rupture, *first*, from inflammatory effusion into and distension of their cavities; or, *secondly* (the contents of the cysts being only the common bland secretion of such cysts, and unmixed with any inflammatory matter), they may rupture from mere over-dilatation and gradual attenuation of their coats, or under sudden mechanical pressure and injury.

2. When a cyst ruptures from the effects of inflammation, or contains within it at the time of rupture inflammatory secretions and materials, the escaping fluid, if effused into the cavity of the peritoneum, is always liable to be followed by dangerous, and generally fatal, peritonitis.

3. If, however, a cyst bursts into the peritoneum under mechanical injury, or in consequence of simple laceration from over-distension of its cavity, and the fluid effused into the sac of the peritoneum is consequently not commixed with inflammatory secretion, there is little or no great tendency to peritonitis.

4. Sometimes, indeed, when thus a non-inflamed ovarian cyst ruptures into the cavity of the peritoneum, the life of the patient is preserved, or at least prolonged, by this accident.

5. When an ovarian cyst ruptures into a mucous canal, or upon the cutaneous surface, the safety or danger attendant on the laceration is not regulated by the inflamed or non-inflamed character of the effused fluid.

6. In cases in which the fluid of an ovarian cyst obtains an outlet by a mucous canal, or by the skin, a temporary or more permanent reduction of the tumour and comparative cure of it may be the consequence.

Lastly, let me add that, as in many cases and points the surgery of art is an imitation of the surgery of nature, possibly the artificial repetition and establishment of the above modes of relief, if they could be imitated safely and certainly, may yet be found capable of temporarily arresting, if not curing, ovarian dropsies in some appropriate cases, and more particularly in instances in which the bulk of the tumour is formed by one large preponderating cyst.

47. *Rupture of the Perineum*.—Mr. I. B. BROWN read an interesting paper on this subject before the Medical Society of London, January 8, 1853. He began by referring to a paper that he read before the Society in 1851, and, recapitulating some of the points therein discussed, introduced his new mode of operating for ruptured perineum. The patient should be placed in the position for lithotomy; the knees well bent back upon the abdomen by an assistant to each leg; that the parts around should be carefully cleansed of hair by shaving; then each assistant should hold the sides of the vagina and perineum, so as to insure sufficient tension for the operator to make a clean incision with a scalpel down

into the vagina about three-quarters of an inch on each side, removing carefully and thoroughly the mucous membrane. Having done both sides, there would still remain a space covered with mucous membrane between those two sides, embracing the edges of the rectum where the sphincter was lost; that this must also be carefully denuded—very carefully, because, if there remained the slightest portion of mucous membrane around, or even near to the rectum, then most certainly there would be a recto-vaginal fistula after the restoration of the perineum; that some operators, especially on the continent, had removed the mucous membrane by the scissors, but Mr. Brown stated that that was a long and insecure method, and that the knife would be found quicker and better. Mr. Brown observed, that as soon as this stage of the operation was completed, the sphincter should be divided as before described; then the legs should be relaxed, and the thighs brought more in apposition, so as to allow the sides of the vagina to be grasped with the forefinger and thumb of the left hand, while with the right the sutures were passed deeply through each side, as deep as the denuded surfaces of the vagina; the first backwards, as near the rectum as possible without piercing it; the second and third in the same way; that the length of the incision should correspond with the scar of the ruptured surfaces; that the sutures were double, so as to allow the quill, or, more properly, the piece of elastic bougie, to pass through each suture on both sides; Mr. Brown preferred twine to silk for the sutures, because it was less irritating, and produced, therefore, less suppuration; that the forefinger of the right hand should then be passed into the vagina, and the forefinger of the left hand into the rectum, so as to ascertain that there was no opening; that, having secured the three sutures firmly to the bougies, it was advisable to bring the edges of the incised surfaces together by three or four interrupted sutures; that, if this step of the operation be carefully done, union of the skin would quickly take place, and materially facilitate the union of the deeper surfaces. Mr. Brown observed, that it had been asserted by many accoucheurs of the highest eminence, that if the operation be performed immediately after the accident, no good would result, as the lochia would flow in between the surfaces, and thus prevent adhesion and union; that he had found that opinion to be entertained by Trogher, in the 7th volume of the *Vienna Journal*, for 1851; for he therein states, among other conclusions drawn from sixteen cases, "that a favourable issue could only be expected where there was a very moderate flow of lochia;" also, "that it was impossible to protect the margins of the wound from the injurious influence of the lochia." Mr. Brown believed that these objections were removed by dividing the sphincter; if not divided, the inner edges of the wound would be gradually drawn apart by the action of that muscle, and the lochia would penetrate; whereas, after division, those edges were perfectly passive, and steadily kept together by the sutures. In the after treatment, great stress was laid upon keeping the patient quiet, drawing off the urine as often as required, and the use of opium to keep the bowels constipated for several days after the operation. Mr. Brown stated that, for the convenience of discussion, and in order to make his paper more intelligible, he affirmed four distinct propositions, which he hoped to demonstrate by the cases which followed: Firstly, That the oldest and worst forms of ruptured perineum could be cured by the operation he had already described. Secondly, That the worst forms could be cured by operating immediately after the lesion. Thirdly, That the new perineum was not torn by, or prejudicial to, subsequent parturition. Fourthly, That those forms of rupture where the sphincter was not torn through, should be cured to prevent prolapsus uteri, &c. Mr. Brown illustrated the first proposition by five cases; then the second and third propositions by three cases; and, finally, the fourth proposition by two cases.

Dr. BARNES said it was impossible to overdraw the picture of the miseries, physical, mental, and social, which resulted from this terrible infliction, nor was it possible to estimate too highly the means of bringing relief. It certainly was true that this accident was a reproach to surgery; many eminent surgeons had abandoned the hope of giving effectual relief. It was to escape from this difficulty that some obstetric authors had endeavoured to persuade themselves that a ruptured perineum was, to a certain extent, a good thing, inasmuch as

a future labour would be easier. Confident that the perineum was a useful structure, and that the design of nature was clear, he (Dr. Barnes) strenuously maintained that in every case of laceration the injury should be repaired to the utmost possible extent. Before considering the merits of Mr. Brown's proceeding, he (Dr. Barnes) would make one observation upon a purely obstetric point, in which he thought Mr. Brown had come to a hasty conclusion. Mr. Brown had stated, that whenever the pains in labour gave way after labour had made some progress, he drew the conclusion that the cord was twisted round the child's body, and that the child's life was in danger, or rupture of the perineum was to be feared. He (Dr. Barnes) could not trace any connection between twisting of the cord and rupture of the perineum. Again, when a remission of the pains, such as Mr. Brown referred to, occurred, such pains as he (Dr. Barnes) had been accustomed to call "abortive pains," there were numerous causes to which they might be attributed; any impediment to the labour might account for it; the one which Mr. Brown alluded to was only one among many. To the operation pursued by Mr. Brown, he (Dr. Barnes) was willing to accord considerable praise; but he thought it inferior to the proceeding of Mr. Charles Brooke. The two great objects of this operation were to obtain perfect apposition of the two surfaces, and then to secure perfect quiescence. He believed this could not be done by the common quill-suture employed by Mr. Brown; whereas, by means of the bead-sutures of Mr. Brooke, these objects were perfectly obtained. Another great advantage over the quill-suture was, that by means of the bead-suture a perfect apposition of the internal wound—that of the mucous membrane of the vagina—could be obtained by the use of one or more sutures for this purpose. In this manner the lodgment of any foul secretions between the edges of the wound inside the vagina—a great source of failure in these operations—was avoided. There were two points much insisted upon by Mr. Brown, upon which he (Dr. Barnes) could not agree. From his own experience of two successful cases, he was prepared to say that the practice of locking up the bowels for eighteen days was not necessary; and he could not but apprehend that some injurious effects upon the system might ensue from the continued large doses of opium given for that purpose. The division of the sphincter was an important improvement upon the old proceeding when the quill-suture was employed; but with the bead-suture he did not believe it was always required. In the two cases he had witnessed, in which Mr. Brooke's plan was followed, in one of which Mr. Brooke operated, and in the other when he (Dr. Barnes) had performed it himself, entire success was obtained by the perfect security against motion provided by the bead-sutures. Undoubtedly, Mr. Brown was justified in surrounding his operation with every possible precaution. He (Dr. Barnes) however wished to suggest to Mr. Brown, that in any future case he should, when dividing the sphincter—for if he adhered to the old quill-suture, in order to secure the success of his operation he must divide the sphincter, that he should do so by subcutaneous section; he had several times seen this done by M. Blandin, the late Professor of Surgery, at Paris; and he (Dr. Barnes) considered it much preferable to the severe proceeding of cutting through all the structures of the rectum. In concluding, he would again express his sense of the value of Mr. Brown's communication; but he felt called upon to remark, that Mr. Brooke's method had been before the profession for some years, and that in any discussion upon the methods of relieving lacerations of the perineum it ought not to be passed over.

Dr. MURPHY could not agree in all the views expressed by Mr. Brown, though he admitted that new light had been thrown upon the subject by the paper. The paper must be regarded from two points of view: first, in its surgical, and secondly, in an obstetrical point of view—viz., as to the selection of cases which required operation, and of those which should be left alone. In the two first cases detailed by Mr. Brown, in which the sphincter had been entirely divided, the operation was excellent; but in the slighter cases, in which there was only slight laceration of the external sphincter, he questioned the propriety of operative procedure, looking at the risk of mischief following it, particularly when resorted to immediately after delivery. He must, therefore, protest against cutting so soon after parturition. Looking at what nature effected in slight

cases of laceration of the perineum, he did not consider that the operation would, in these instances, be often necessary. Let alone, they became so contracted that even where the perineum had been ruptured to the extent of two and a half inches, it would, in course of time, be so repaired, that it would not be known that any laceration had taken place. If, therefore, the laceration was not so great that support was not lost for the uterus, it was not necessary, in his opinion, to operate. In the cases operated upon, Mr. Brown had related one in which the contraction following the operation was so great, that the perineum would again have ruptured during parturition had not chloroform been administered to the patient. A new cicatrix would rupture more quickly, and perhaps to a greater extent than the original normal texture; for the tissue of the cicatrix would not expand, and there would be great fear of rupture.

Mr. BROWN, in reply, spoke of the great neglect of English and foreign authors, in respect to the operation for lacerated perineum. He believed that the operation hitherto has failed mainly from the neglect of the after-treatment. With respect to the bead-suture, he could not see its advantage over the one he had used, and found successful. He urged the necessity of division of the sphincter before the application of the sutures, in bad cases. He defended the use of opium to constipate the bowels, and had never seen any ill effects from its employment. He contended that the subcutaneous division of the sphincter, as recommended by some, would not be sufficient; the entire structure must be divided, in order that no stress whatever should be made on the divided edges. He differed with Dr. Murphy as to the risk of the operation in respect to vaginitis. He supported patients with meat and wine from the commencement, even when the opium was being used. With respect to smaller lacerations, he contended that it was the duty of the surgeon, if he could afford any relief, to give it.—*Lancet*, Jan. 22, 1853.

48. *Iodide of Sodium in the Treatment of Constitutional Syphilis.*—Dr. UBALDO DAVERI has employed the iodide of sodium instead of the corresponding salt of potash. The iodide of sodium employed by Dr. D. was prepared according to Raspini's directions, by placing three ounces of filings of iron in two and a half pounds of distilled water, and gradually adding, with constant agitation, a pound of iodine; as soon as the mixture had acquired a greenish colour, it was filtered, and quickly treated with a solution of carbonate of soda until all the iron was thrown down. The carbonate of iron thus formed was separated by filtration, the filtered fluid evaporated to dryness, and the residuum again dissolved, filtered, and evaporated until a pellicle had formed. By this method fourteen ounces of iodide of sodium were procured in the form of white rhomboidal prisms, deliquescent, and having a saltish taste less disagreeable than that of iodide of potassium.

The iodide thus prepared was found to answer much better than that made from iodine and caustic soda, the salt procured by the latter process being not only disagreeable to the taste, but giving rise to a burning sensation in the fauces, to weight and uneasiness in the stomach, and to gastro-enteric pains—effects attributed by the author to an excess of iodine which the salt was, by analysis, found to contain.

The dose administered at the commencement of the treatment was always a scruple of the iodide dissolved in three ounces of distilled water, and given in three equal portions in the course of twenty-four hours. The salt was likewise employed, in the form of ointment, in the proportion of half a drachm or a drachm to the ounce of lard. In the administration of the iodide of sodium, the same rules and precautions are to be observed as apply to the use of the potassium salt. Although the author, for reasons and facts set forth in his *Manual of Venereal Diseases*, repudiates the distinction of constitutional syphilis into secondary and tertiary, he divides the 116 cases, on the observation and treatment of which his present paper is based, into the three following classes:—

1. Cases of constitutional syphilis in which so-called secondary and tertiary phenomena coexisted.
2. Cases of so-called tertiary lues in which the use of mercury preceded the treatment by iodide of sodium.

3. Cases of so-called tertiary lues in which iodide of sodium alone was employed.

Of the first class, twelve cases, in which the symptoms were pains in the bones or periostitis, united with some manifestly constitutional affection of the skin, generally of a papular or pustular form, were treated with iodide of sodium. In eight of these cases the use of the salt alone effected a cure; in the remaining four it was necessary to have recourse to mercurial frictions to remove the cutaneous affection which remained after the tertiary symptom had yielded to the administration of the iodide. The minimum quantity which succeeded in curing the disease was three drachms, the maximum three ounces; the quantity which was usually required ranged from two to three ounces; the shortest time in which the symptoms were removed was nine days, the longest three months, the average was about a month.

The author thinks it possible that the four cases in which the iodide of sodium thus appeared to fail might have yielded to a longer perseverance in the use of the salt. This was, however, precluded by the circumstances of the individual cases.

The cases of the second class, or those of so-called tertiary lues, in which the use of mercury preceded the treatment by iodide of sodium, were seventeen; in some of these, six or seven ounces of strong mercurial ointment had been rubbed in; the average quantity was from four to five ounces. The minimum quantity of iodide of sodium administered was three drachms, the maximum, four and a half ounces, the average from one to two ounces. It is most important to observe, that those patients who had derived no benefit from a protracted course of mercurial treatment, were cured after the administration of a small quantity of iodide of sodium; while this remedy had to be given to the extent of four and a half ounces in cases in which only a limited number of mercurial frictions had been used: the patients who resisted the long-continued employment of the ointment, laboured under osteocopic pains, which subsequently gave way to a small quantity of the iodide; while those who practised without benefit a moderate number of mercurial frictions, suffered either from syphilitic rheumatism, or from a mixture of syphilis and scrofula. This fact of the iodide being required in the inverse ratio of the amount of mercury previously employed, arises, the author thinks, from this—that in the first case the use of mercury had in a great measure overcome the syphilitic element, which was then entirely removed by the administration of the iodide; while in the second, the elimination of the constitutional venereal principle commenced by the mercury was, for the most part, reserved for the iodide of sodium; and he points to a therapeutic consonance between the two agents, corroborating an opinion formerly advanced by him that the iodides of sodium and potassium are the best substitutes for mercury, as they are about equally efficacious with it in the treatment of so-called tertiary phenomena.

The cases belonging to the third class, comprising those of so-called tertiary lues, in which the iodide of sodium was the only medicine administered, were eighty-five in number; of these, thirty-seven were cases of ostalgia, in the treatment of which vapour-baths and iodide of sodium were employed; the minimum quantity of the latter given was from one to seven drachms, the maximum from eight to twelve ounces, the average from two to four ounces. Of rheumatalgia, the cases were seventeen—likewise treated with vapour baths and the iodide; the minimum dose of the latter being from two to four drachms, the maximum nine ounces, the average two to four ounces. Of arthralgia, nine cases were similarly treated, the minimum quantity employed having been seven drachms, the maximum two ounces. Of the other varieties of tertiary disease, the numbers were too limited to require special mention, or to justify the deduction of conclusions from them.

The inconveniences which frequently attend the use of the preparations of iodine, and amongst them of iodide of potassium—such as derangement of the stomach, iodic eructations, pyalism, and affections of the throat, were seldom met with from the time the iodide of sodium was substituted for the potassium salt; consequently, the remedy could be more steadily persevered with, and its dose more rapidly increased; circumstances directly promoting the cure of the

diseases for which it was administered. In the few cases in which pytalism occurred, it totally ceased on suspending the medicine for two or three days. In but a single case did it appear to be obstinate; and in this instance the mouth was, on examination, found to be pale, free from swelling, and very slightly painful; as the patient lay in a ward with many syphilitic patients under mercurial treatment, it was thought the salivation might be owing to mercurial vapour present in the atmosphere, a suspicion which was verified by the result; for on removing the patient to another apartment free from mercurial contamination, the salivation entirely ceased in two days.

At the time the author drew up the report of the first experiments with this salt, Dr. Lesi, Assistant Physician to the Hospital of Saint Orsola, had noted that the mean time required for the cure of nineteen patients treated with the iodide of sodium was about twenty-eight or twenty-nine days, while with the potassium salt, likewise exhibited in nineteen cases, the average time was from thirty-four to thirty-five days. Many cases which had either not got entirely well, or were proceeding but slowly under the use of the iodide of potassium, were rapidly cured by the substitution of the corresponding salt of sodium.

Several of the cases, however, treated with iodide of sodium relapsed, and the disease again yielded sometimes to a repetition of the remedy, sometimes to the use of mercurial frictions. But this circumstance cannot be urged against the iodide of sodium alone; for the same is equally true of every other anti-venereal remedy—one of the leading features of lues being its tendency to present periods of lull and of relapse, whatever be the therapeutic means employed to combat the constitutional taint from the first moment of its manifestation to the last evidence of specific disease.

The author concludes his paper with the following *resumé*:—

1. Soda being a very common ingredient in our organism, the iodide of its base appears best suited to the human system.
2. The taste of the iodide of sodium is much less disagreeable than that of the iodide of potassium.
3. It is less likely to occasion iodism.
4. It is better borne than the potassium salt, and in consequence of this its dose can be almost daily increased, and it thus becomes a more efficient remedy.
5. It has sometimes succeeded where the iodide of potassium had failed.
6. We may commence by giving daily, in three equal doses, a scruple of the salt dissolved in three ounces of distilled water, increasing the strength of the solution every two or three days by six grains. Some patients have in this way been able to take more than two drachms a day without suffering the slightest inconvenience.
7. The iodide of sodium is admirably adapted to cases in which the corresponding salt of potassium is indicated.
8. The iodide of sodium is the best substitute for mercury.—*Dublin Quarterly Journ.* Nov. 1852, from *Corrispondenza Scientifica di Roma*, 1852, No. 32.

49. *Paste made with Sulphuric Acid and Saffron as a new Caustic in Malignant Ulceration of the Face*.—M. E. CAZENAVE, of Pau, relates, in *L'Union Médicale* for 22d January, two cases of malignant ulceration of the face, in which he has successfully employed a local application, made from sulphuric acid and powdered saffron. The remedy is formed by pouring the acid on the saffron, and applying it in the form of a soft paste. Its corrosive action is immediately manifested on the diseased tissues; the paste dries, and falls off in two or three days, in the form of black crusts, which carry with them the eschar. The application is made several times; the wound assumes a healthy red tint, and cicatrization takes place. In one case a year has elapsed, and in the other two years; and the disease has not returned.

The efficacy of this treatment is evidently dependent on the sulphuric acid, which, we believe, would succeed equally well if made into a paste with common flour, or any ligneous powder, as with saffron. A paste of sulphuric acid and flour would be worth trying in obstinate cases of phagedenic ulceration.—*Assoc. Med. Journ.* Jan. 28, 1853.

50. *Suppuration in the Mastoid Process in Children.* By Dr. RIECKE, of Berlin.—The formation of pus in the ear is not unfrequent in scrofulous children, but the extension of the suppuration to the mastoid process of the temporal bone is rare. I shall here describe some cases in which the mode of this occurrence appears to me to be still more interesting than the occurrence itself.

M. v. E., a weakly child of scrofulous tendency, and excitable nervous system, in January, 1835, while playing in stormy weather in the open air, was seized with most violent pain in the right ear. She became somewhat feverish, and the attack appeared to consist merely in a slight cold affecting the ear. Mild diaphoretics, little bags of warmed herbs laid upon the ear, a warm bed, and a small blister to the nape of the neck, soon gave relief. After some days a brownish-yellow thin discharge took place from the right ear, which in the course of a few days more became whitish and thicker, and lasted a fortnight. It then entirely ceased for a fortnight, the patient being in other respects well; nevertheless, the violent pain increased, without external cause, and the secretion from the ear subsequently set in again. The discharge did not diminish under the employment of stronger derivative measures, such as blistering and purgatives; the pain, however, disappeared. In the beginning of April, the skin covering the mastoid process behind the right ear began to swell, to be tender, and to assume a reddish colour. Pain and fever again set in. Leeching and the application of mercurial ointment gave relief; a greater discharge again took place from the ear, and the patient hawked up, especially on awaking in the morning, much purulent matter. Alterative medicines were exhibited, and the case was going on well. The swelling and pain in the mastoid process diminished. Fourteen days after, a swelling again suddenly took place, while the discharge from the ear ceased. The tumour was so large that it threatened to break, and I thought I could distinguish with the touch through the soft swelling the expanded laminae of the bone. I now meditated opening the tumour, but at one time the dread of the knife manifested by the little patient and her friends, at another the apprehension that the probably unfavourable result would be attributed, as it so often is by the ignorant, to surgical interference, prevented me doing so, a policy not blamable in a young practitioner, especially where there is no pressing indication to use the knife. Injection into the ear and the application of warm emollient poultices to the parts were now repeated in order to re-establish the discharge. At length the discharge from the ear suddenly recommenced; during the following night the little patient again brought up a quantity of bloody pus, and the great external swelling of the mastoid process as suddenly disappeared. The discharge from the ear continued until the middle of May; it was reported to have been fetid during the entire of one day; with this exception it was free from smell. On a sudden, a swelling of the mastoid process took place within a few hours, attended as before with a cessation of the discharge from the ear. It was easy to feel fluctuation under the laminae of bone covered by the thin integuments, and the tumour appeared this time to be decidedly about to open. Nevertheless, a purulent discharge was again established from the ear and throat; the mastoid tumour quickly diminished; and by the end of May the discharge had entirely ceased both from the ear and throat. Hearing continued unimpaired, so that in the month of June the patient's recovery was complete.

This was one of the rarer cases of affection of the ear in which the pus flows through the Eustachian tube to the throat. It may certainly often occur without being observed, for in the daytime the discharge is generally swallowed by the little patient; it is only in the morning, when it collects in greater quantity, that it is brought up. The case should also teach us not to be overhasty in opening such tumours externally, a proceeding which might induce the establishment of a tedious caries, and leave behind it a disfiguring scar. The following affords an additional illustration of the truth of this view.

In the April of the same year, the wife of a wind-miller brought me her son, aged four years, who was suffering from caries of the mastoid process. On inquiry into the history of the case, I ascertained that he, likewise, in the month of January, 1835, was attacked with pain in the ear, otorrhoea, and swelling of the mastoid process, which finally burst, without medical assistance having

been sought. The child being otherwise in good health, the sore healed in a few months without other treatment than attention to cleanliness. A year subsequently his head was crushed by the sail-beam of the windmill, and he died in an hour after the injury. On dissection, I examined the mastoid process. There was a deep tortuous canal of the size of a crowquill, which involved the internal layers of the temporal bone, and was lined by a thin membrane covered with a brown greasy, fatty matter. The cells of the mastoid process which were not touched by this canal were in their normal condition; those situated in its neighbourhood had grown into union with it.

It is remarkable that in the month of April a third patient, the son of a brickburner, was brought to me with a fistula in the mastoid process, which dated its origin from an attack of acute earache, caused by exposure to severe weather in the preceding January. All three patients, it was proved, had brought on the attack on a very stormy day; the first, in a playground adjoining a highly located church; the miller's son in the neighbourhood of the mill, likewise in an elevated situation; the son of the brickburner in the exposed locality of the tiler's hut. It appears to me remarkable that, although I have during thirty years had much experience, no similar case should have occurred to me either before or since those I have detailed. Three cases of an undoubtedly rare affection arising at once, and, so to speak, even in one day, almost point to an epidemic origin. Acute and violent earache in children, who pass from a warm room into a severe and piercing January wind, is a frequent occurrence, but it is certainly rare and remarkable that in each of these three patients, the affection should have had the same unusual termination in suppuration of the mastoid process. I may also observe that my case-book at that time contains no history of any affection of the ear but the three given above.

It would not be uninteresting, in reference to the theory of the origin of epidemic diseases, if other physicians had experienced something similar at that period, and would record their observations. Since we now know that the air is at times impregnated with matters (ozone) which have an irritating effect on the respiratory passages, a strong current of air pressing into the ear may, if it contains an irritating principle, excite in this organ very peculiar affections. In natural science every observation is of value, and often finds its explanation only after the lapse of years, or even of decennial periods. For this reason it may be useful to have recorded the foregoing cases; besides, they afford instructive proof that in abscess of the mastoid process, we should not hastily have recourse to the knife; and they also show that we need not very much dread the occurrence of caries, if we take care to avoid employing means which may be productive of injurious consequences. My patients recovered under simple treatment. — *Dublin Quarterly Journ.* Nov. 1852, from *Journal für Kinderkrankheiten*, March and April, 1852.

OPHTHALMOLOGY.

51. *Benzoic Acid in the Treatment of Scleritis.*—Mr. WHITE COOPER, in an interesting paper on Scleritis (*Association Medical Journal*, Jan. 28, 1853), states that he has employed, at the suggestion of Mr. Ure, the benzoic acid in this disease, in the case of a member of Parliament, who from exposure was attacked by rheumatism of the muscles, followed by a sudden attack of scleritis of one eye, which for a fortnight had bid defiance to active general measures and local sedatives and astringents. When seen by Mr. Cooper, the conjunctiva and sclerica were intensely inflamed, the corneal zone being strongly marked. The iris, naturally blue, had a green tinge, but was not otherwise altered; the pupil was contracted, and sluggish; the globe excessively tender; he had much mistiness of vision, intolerance of light, and profuse discharge of scalding tears. There was great supraorbital pain, involving the whole side of the head, and

greatly aggravated at night. This state of things had existed a fortnight, and he was very low, with cold skin, and feeble pulse.

The history of the case, and the symptoms, indicated rheumatic scleritis, which had gradually involved the iris and the choroid; and Mr. C. thought it a favourable opportunity for trying benzoic acid. Six leeches were first applied to the mastoid, and the patient was then ordered to take half a drachm of powdered benzoic acid thrice a day. He began this on a Tuesday. On the Thursday, there was a manifest improvement; he had passed a good night, and could face the light, whilst the local inflammation had materially decreased. The powders were stopped on the Friday, as he complained that they made him sick; the improvement, however, continued. The only other medicine ordered was a little gray powder; and on the Monday following—the sixth day after fairly commencing this treatment—the patient left town with his eye almost entirely free from redness, and with merely some haze of vision, all which symptoms, Mr. C. subsequently learned, disappeared in the course of another week.

52. *On the Use of Chloroform in Operations on the Eye.* By WHITE COOPER, Ophthalmic Surgeon to St. Mary's Hospital, &c.—In common with many others, I for some time hesitated before using chloroform in extraction of cataract, from a fear that the object of the operation might be defeated by the eye receiving injury during the return to consciousness, or by vomiting afterwards. It appeared to me, however, so deserving of a trial, that nearly two years ago I first employed it, and since that time have availed myself of it very frequently in operations on the eye, including sixteen cases of extraction of cataract, nine of artificial pupil, four of foreign bodies in the eyeball, and two of tumours in the globe, besides numerous needle cases. Several of the cases have been published in the *London Journal of Medicine*; and among the gentlemen who witnessed the more difficult operations, I may mention Mr. Barnard Holt, Mr. W. F. Barlow, Mr. Holmes Coote, Mr. Charles Hawkins, Mr. G. Pollock, Mr. J. R. Lane, Dr. Toogood, etc. Having had this experience, I propose to offer a few observations, which may be found practically useful.

The advantages obtained by the use of chloroform in operations on the eye, are, a perfectly quiescent condition of all the muscles, whether of the globe or the lids, absence of congestion of the eye, and mental tranquillity for the patient. To the operator, the perfect repose of the eye affords a manifest advantage, the various steps of the operation being performed with as much facility as in a demonstration on the dead subject; the risk of prolapse of the iris (which is usually caused by muscular action) is greatly diminished, and the corneal flap can be accurately adjusted.

Under ordinary circumstances, the very act of raising the lid and fixing it, causes a sympathetic rush of blood to the eye, which vascularity is increased during the various stages of the operation. When the patient is unconscious, nothing of the sort happens. I have repeatedly completed the extraction, leaving the eye as free from congestion as before it was commenced; and the same has been noticed by gentlemen who have witnessed my needle operations at St. Mary's.

There is perhaps no operation more dreaded by nervous persons than that of extraction, from an exaggerated idea of the sensibility of the eye. The knowledge that the operation will be performed without the least suffering, inspires such persons with confidence; and the joyous state of mind which all patients experience on awaking from sleep and finding the operation concluded and the eye bound up, is highly favourable for recovery. And now as to the proceedings.

I strongly advise that in operations on the eye under chloroform, there should be at least one competent assistant besides the operator and the administrator of chloroform; each of these has his own department to engage his attention, and it is most embarrassing to have the patient partially recover and struggle just at a critical moment. This occurred in the first extraction under chloroform

¹ "Cases of Foreign Bodies in the Eye," vol. iv. p. 301; "On Cysts in the Interior of the Eye," vol. vi. p. 787.

performed by me; and, as it was the first case of the sort in which Dr. Snow had administered the vapour, the patient had not a sufficient dose. It unfortunately happened that the gentleman who was to have assisted me was prevented keeping his appointment, but I imagined that the doctor and I could manage the lady ourselves; in due time, she appeared completely insensible, but just as the section was being satisfactorily completed, the patient threw her head on one side and tried to sit up; the consequence was, that the operation was impeded, considerable prolapse of the iris took place, and a closed pupil was the result.

The patient should be recumbent. In that posture he can rest quietly after the operation, and is more manageable during the period of excitement than when sitting in a chair. I have tried the administration of chloroform on a handkerchief, and by means of Dr. Snow's apparatus, and decidedly prefer the latter. When the handkerchief was used, it was in my way, and the fumes of the chloroform annoyed me—matters of importance in such a delicate proceeding as extraction. A full dose of chloroform is necessary, and the patient should not partake of food for five or six hours prior to the operation; but he may swallow a few fragments of ice just before it is commenced, and again as soon as consciousness returns. This (which I believe was first suggested by Dr. Simpson, of Edinburgh) allays any tendency to vomit. I prefer operating in the afternoon, as the soporific effect of the chloroform continuing, generally insures a good night; but the hands must be secured, and the patient carefully watched, as under ordinary circumstances.

With regard to the operation itself, it is important to have the point of the extraction-knife as sharp and the edge as keen as possible. If there be the least *hanging*, the eye will be pushed before the knife, from the utter passiveness of all the muscles, and unless the operator is prepared for this, there will be great probability of the counter-puncture being made too near the centre of the cornea, whereby the section will be too small.

During extraction, as ordinarily performed, the lid is dropped as soon as the section is completed, and a pause takes place to permit the eye to become quiet. Under chloroform, this is unnecessary; there being no spasm, the curette may be used, and the cataract pressed out the moment the section is completed. When the lens has escaped, the eye presents a curious appearance, always supposing enough chloroform has been administered; the muscles being passive, the iris falls back in a concave form, and the cornea having no support, sinks, becoming as wrinkled as a shrivelled apple. The eye having been gently cleansed, and the lids dried with a soft rag, the upper lid should be lifted by the lashes and brought down over the cornea; then two broad strips of adhesive plaster should be crossed over the eye and cheek, a bandage applied, and the patient left quiet for half an hour or an hour, after which he can be removed to bed. When all fear of vomiting has subsided, the plaster may be taken off: but it must be thoroughly softened with warm water, and lifted with the utmost caution and gentleness, so that there be no dragging on the lids. The subsequent proceedings differ in no respects from those practised after the operation as ordinarily performed.

In these remarks I have especially mentioned extraction, but the general directions are equally applicable to all operations on the eye; and, I may add in conclusion, that when operating on an eye in a state of inflammation, as in the extraction of a foreign body, a shot, a fragment of steel, or copper cap, the value of chloroform cannot be too highly estimated.—*Ass. Med. Journ.* Jan. 7, 1853.

53. *Observations on Morgagnian Cataract, with Cases.* By W. R. WILDE, Esq., F. R. C. S.—Cases of what are termed Morgagnian cataract being very rare, their pathology being but imperfectly understood, and great variety of opinion existing among authors with respect to their cause, symptoms, and treatment, I am induced to offer to the profession the following observations on the subject, the result of four cases which came under my notice within the last few years. The question of a fluid existing during life between the capsule and the lens, as originally believed by Morgagni, would appear to be set at rest by the

investigations of modern anatomists, who have paid special attention to the structures of the eye—the late Mr. Dalrymple, Dr. Jacob, and Mr. Bowman. By those, however, who believed in the existence of this fluid between the capsule and lens during life, it was conceived that a morbid action might be set up in it, whereby it became muddy or opalescent, the lens itself retaining its transparency and form. The best ophthalmic pathologists, however, of the present day, are of opinion that the Morgagnian is but a variety of fluid cataract, commencing in the external layer of the lens, and which process, if continued long enough, would end in softening of the whole. In addition to this, Mr. T. Wharton Jones, in his *Manual of Ophthalmic Medicine and Surgery*, says: “With, perhaps, absorption by endosmose of aqueous humour into the capsule determined by a diseased state of the lens, similar to what takes place after death, and which is the true source of what is called the Morgagnian fluid.”

The discrepancy which exists in the opinions, and the variety in the descriptions of authors, as well as the number of names applied to this form of cataract, have apparently arisen from the inexact knowledge of pathologists, and the views formerly entertained with regard to the Morgagnian fluid. We read of it in books under the names of *cataracta Morgagniana*, *cataracta lactea*, *cataracta puriformis*, *hydrops lentis crystallinæ*, the *Morgagnische staar* of the Germans, and the *cataracte interstitielle* of French writers. Jannin was the first to distinguish it from milky cataract.

Pott says that the lens “is capable of being dissolved or becoming fluid without losing any of its transparency;” and, in a note to the foregoing paragraph, the same authority says: “Sometimes, from distemper, I have no doubt that the whole crystalline is dissolved into a fluid, still retaining its transparency.”—(*Chirurgical Works*, Vol. III. p. 216.) This is a condition which I have not observed, and one on which I should like to obtain the opinion of the profession. Still, Pott seemed, according to the general tenor of his “Remarks on the Cataract,” well aware of the softened state which the external layer of the lens assumes in some forms of cataract.

The younger Wenzel believed in an altered condition of the liquor Morgagni, without any sensible change in the structure, size, or transparency of the lens, and has given two cases in proof thereof. The first was that of a young man, operated on by his father in London, in 1765, the colour of the cataract being “extremely white.” It must here be remembered, that the Wenzels lacerated the capsule while passing the knife across the chamber. “Before the section was completely finished, a milky substance issued out of the pupil, and escaped with the aqueous humour,” leaving the parts behind the iris perfectly clear. On removing the dressing next day, the lens in its natural state of transparency and size was found between the edges of the eyelids. I much question, however, the accuracy of the observation with respect to its bulk. The second case which he has related occurred in Vienna, in 1774, in a young child. In it, the cataract had a “bright white colour.” Extraction was performed; and, when the cornea and anterior capsule were divided, a milky fluid escaped with the aqueous humour, and vision was restored. Next day, the crystalline was found lodged between the lips of the corneal section, “transparent, colourless, and rather small.” In a note attached by Mr. Ware, the translator of Wenzel, to the foregoing instances, he inclines to the belief that the fluid portion of the cataract was the periphery of the lens dissolved.—(*Wenzel's Treatise on the Cataract*. Ware's Translation, p. 201.)

Richter, in defining the seat of cataract, says: “It is either the crystalline lens alone, or the lens, the capsule, and the liquor Morgagni together; or it is the anterior part of the capsule, or its posterior part, or the liquor Morgagni simply. I have seen the last only once.” But although this opinion was in accordance with the peculiar anatomical notions of his day, he seems to have been well acquainted with what we now know as Morgagnian cataract, and says, a little further on in the same chapter: “It happens now and then, that, as soon as the capsule is opened, a considerable quantity of a milky-coloured fluid flows out, and, soon after, follows a very small lens. The quantity of the fluid, and the uncommon smallness of the lens, render it probable that its ex-

tenal laminae have been dissolved."—(*A Treatise on the Extraction of the Cataract*. English Translation, pp. 4, 7. 1791.) This appears to me the best and most faithful definition of the disease given at that time.

The chief authority on this subject, and that from which most English writers have drawn, is Beer, who, in the second volume of his *Lehre von den Augenkrankheiten*, published in 1817, has given, at page 291, a faithful description of the disease, the best method of diagnosing it, and also an engraving from a drawing made by himself. (Plate III. Fig. 3.) He says it is the very rarest form of cataract, and believed that the original seat of the disease was in the so-called Morgagnian fluid, which became suddenly turbid, the lens and capsule remaining transparent; but that very soon both these structures became opaque. In Beer's cases, the disease was produced very rapidly by the exposure of the eye to the fumes of mineral acids. In one instance, the turbid fluid was formed in a few hours.

Mr. Vetch says that this form of cataract "very seldom exists by itself, being quickly followed by opacity of the lens and capsule."—(*A Practical Treatise on Diseases of the Eye*, p. 119.) With respect to the capsular opacity, I have doubts; and the author does not give any cases of it which came under his own observation.

Dr. Mackenzie says that this "forms one of the rarest kinds of cataract."—(*A Practical Treatise on Diseases of the Eye*, p. 650.) He is not, however, so happy in his description of this disease as in the other parts of his most admirable and truly practical work. The only instance, he observes, "which I have seen, was in a lady, who embarked at Liverpool with her sight perfect, was very sick during the passage to Greenock, and, next day, landed there with a cataract in one of her eyes, such as I have not observed in any other case, and which corresponded to the description of Morgagnian cataract, except that I could see no change in the form of the opacity after rolling the eye." Having seen some cases in which a lens, dislocated by concussion, or a small penetrating wound, became opaque in twenty-four hours, I am inclined to think that the instance just related may be of such a nature. The straining, or violent sea-sickness, may possibly have destroyed the connections between the crystalline and the surrounding parts.

Mr. Middlemore not having seen the disease himself, it is unnecessary to refer to his work.

Mr. Guthrie described the disease in his treatise on the "Operative Surgery of the Eye," p. 246, not under the head of "Cataracta Morgagniana," in which affection he believes the capsule to be "always the primary seat of the complaint," but in the previous paragraph detailing the symptoms of fluid cataract.

Tyrrill tells us, that the fluid cataract is "also occasionally found in elderly persons; when, however, the cataract is rarely fluid throughout, but the circumference alone is liquid, and the centre is firm 'or hard,'" "I believe the cataract is rarely if ever formed in a fluid state, but that the change is effected in its consistence subsequent to the loss of transparency in its original structure. All the cases I have met with have been of long standing; and I have never been able to detect anything like this fluid change during the progress of the disease."—(*Practical Work on Diseases of the Eye*, Vol. II. p. 365.)

Mr. Lawrence, who, however, does not give any case of his own, doubts the "separate existence of such an affection," supposing that, in the true Morgagnian cataract, the lens remains transparent, which, however, does not seem to be the opinion of all the early authors who define this form of disease. Dr. Hays, of Philadelphia, in his recent edition of Mr. Lawrence's work, gives an account of the dissection of an eye, the previous history of which was, however, unknown, where the capsule appeared "more convex than natural; renitent, as if distended by a fluid; somewhat opaque, and very firm. While squeezing it, to ascertain what pressure it would bear, it broke, and some yellowish white fluid, resembling thin pus, or milk and water, and equal in quantity to about one-fourth the bulk of the lens, was discharged. The lens was of a light amber colour, somewhat smaller than natural, but perfectly transparent." (p. 620.)

Morgan writes: "Cataract sometimes is of a mixed character, the centre being hard and the circumference soft, or almost fluid; and there is no diag-

nostic mark between this and hard cataract."—(*Lectures on Diseases of the Eye*, edited by J. F. Francoe, p. 179.)

In the 7th Fasciculus of the late Mr. Dalrymple's magnificent work on the "Pathology of the Human Eye," he has faithfully described the disease under the head of "Soft Cataract," in the following graphic passage: "Fluid cataract is met with at all ages, but is a somewhat rare species. It appears to consist of disintegration of the lens, and, when it occurs in elderly persons, the nucleus of a hard lens is often found in the interior of the capsule. This latter investment may or may not be also opaque. When the capsule is entirely transparent, it will generally be seen on dilating the pupil; and if the eye has been a short time at rest, that the colour is not wholly uniform; that at the lowest part the opacity is denser, while a certain degree of milky translucency may be seen at the upper part. If the eye be suddenly rolled about, or rubbed, the opacity becomes general and uniform, but clears in the upper part by rest and subsidence of the more opaque materials of which it will be found to be composed. It is by this means that we may distinguish a fluid from an ordinary soft cataract. On examining the contents of the capsule, when we have the somewhat rare opportunity of doing so, we find the fluid semi-opaque, containing the debris of the lens, which may easily be distinguished by the microscope; also many oil-globules, and some plates of cholesterine. In old subjects, as I have before said, the hard yellow nucleus will be found, having resisted the disintegrating process or softening of the lens."

Mr. Brodhurst, one of the latest writers on the subject of cataract, says: "This form is much more common in brutes than in man; indeed, it is not uncommon in the sheep and in the horse, but it is rare in man."—(*Of the Crystalline Lens and Cataract*, p. 122.)

The foregoing extracts contain the opinions and descriptions of the most esteemed authors in this country on the subject, and the modern French and German works have added little thereto. Those of Professor Sichel and Dr. Desmarres may, however, be consulted with advantage; and from the former learned and observant writer may be expected a special essay on the subject ere long. The following cases which I have operated upon have suggested the present communication:—

Mrs. H., aged 60, had been quite blind for several months, at the time I first saw her in 1847. She had well-formed cataract in both eyes; the only peculiarity which I remarked at the time was the more than usual muddy gray homogeneous colour of the cataracts, and their wanting that peculiar pearly-aceous hue common to gray-coloured cataracts where there is a uniform density. I saw her, however, but once before the operation, as she was very anxious to have it performed soon, in order that she might proceed to the Continent. In the June of that year, I extracted the cataract on the right side. The case was in most respects favourable, the eye healthy, but the patient very timid. The upper section of the cornea was completed with facility. Having allowed a sufficient time to elapse, which I am always in the habit of doing, in order that the patient may recover self-possession, and the eye by such rest lose the spasmodic action which affected it during the first step of the operation, I proceeded to open the capsule, when, on incising this membrane, an opaque fluid of a grayish white colour escaped in a considerable quantity. I then mentioned to the medical gentlemen present, that this was what was termed Morgagnian cataract, and that we should certainly find the solid nucleus of the lens within the capsule. By inserting Daviel's spoon or scoop into the external angle of the wound, making gentle pressure on the eye, and inclining the head to one side, the turbid fluid was eventually evacuated, and the pupil became clear. The dark amber-coloured lens then presented with its upper margin somewhat below the pupillary edge of the iris. Upon making the usual pressure and counter-pressure, the lens did not rise in the ordinary manner, but rather depressed behind the iris, while the clear space above its upper edge enlarged, and the vitreous humour presented. Having made several ineffectual endeavours to extract the lens, particularly by increasing the pressure from below, and finding that on each attempt the vitreous humour carrying the iris before it bulged into the section like a case in which the cornea has not been suffi-

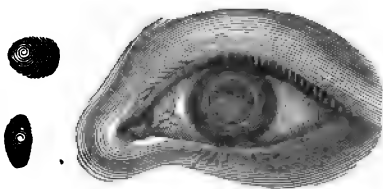
ciently divided, I desisted from any further endeavour to extract by pressure, and resorted to the following expedient: Having allowed some time to elapse, in order that the eye, as well as the patient generally, might become quiescent (a circumstance not sufficiently attended to, but of considerable importance in the management of extractions), I introduced the curette through the section, passed it into the clear space in the upper part of the pupil behind the lens, and then having turned its curved point forwards, fixed it into the back of the lens by pressing it against the iris and cornea, and thus transfixed, I was able with facility to extract the cataract without any loss of the vitreous humour. The lens was small, rather darker than usual, somewhat flattened, but perfectly smooth on the surface. This case recovered without any inflammation or other untoward circumstance, and the vision subsequently acquired was most perfect. This patient now resides at Liège, and is able to read and write as well as any person of her time of life.

The next case occurred shortly after, in the person of an old woman, who presented at the hospital on account of blindness, which, she said, had been coming on for a couple of years. The left eye had previously suffered from internal inflammation, and the pupillary edge of the iris was completely attached to the front of the capsule of the lens, which was quite opaque. Upon the right side there was a muddy, gray opacity behind the pupil, which advanced flush up with its edge, so as not to leave the usual shadow seen in most cases of cataract. Upon dilating the pupil, a dark orange-coloured cloud, which altered its position from time to time, but finally subsided towards the bottom of the capsule, was then plainly discernible. When the eye had been for some time at rest, the amber-coloured nucleus of the lens having fallen forwards against the capsule, confirmed the diagnosis that this was a case of Morgagnian cataract. In this instance, I determined to try the effect of opening the capsule, and allowing the opaque fluid or broken down lens to be absorbed before I proceeded to extract the nucleus. I therefore introduced a needle through the cornea, and freely lacerated the capsule, which was quite transparent. The opaque matter spirted into the anterior chamber, rendering the aqueous fluid turbid and of a milky hue. After a short time, the colouring matter gravitated to the bottom of the chamber as if it was not quite miscible with the fluid of that cavity, and then the dark amber-coloured lens could be distinctly seen behind the pupil, which had contracted during the operation. Violent inflammatory action, characterized by intense orbital pain and some irritability of stomach, ensued during the night, for which the patient had to be cupped, and get a full opiate. In the course of a few days all these symptoms subsided, the redness disappeared, and the patient left the hospital. At the end of six weeks she was readmitted. Having made the upper section of the cornea, I extracted the lens by simple pressure in the ordinary manner. No inflammation followed, and the woman recovered perfect vision, but died of cholera about a year afterwards.

With respect to the pain and sickness of stomach which ensued on giving exit to the fluid portion of the cataract in this case, Mr. Dalrymple's work, already alluded to, contains the following accurate observation: "There are some peculiarities which belong to this variety which it is necessary to mention. If an opening be made into the capsule, as in the operation of keratonyxis, we see the opaque fluid escape, and render turbid that of the anterior chamber. In a few hours after the operation, the patient is seized with nausea and violent vomiting, and with intense ocular or frontal neuralgia. (In one case, I remember to have seen the vomiting and neuralgia continue almost unremittingly for three days.) Upon what circumstance these phenomena depend, is wholly unknown to us. That it must, however, be closely connected with the poisonous presence of the contents of the capsule in a cavity in which absorption and reproduction are always going on, does not admit of a doubt; for, if such a cataract be removed by extraction, in which case the capsule generally escapes entire, no such state follows." In this latter observation, however, I cannot agree, as the capsule was not extracted in any of the four cases on which I have operated.

The third case was that of a female aged 50, from the West of Ireland, who

was admitted into the hospital in 1851, with well-formed cataract in both eyes. I had seen this woman in 1847, when there was an opaque nucleus in both lenses; but, as she could then see sufficiently well to follow her ordinary occupations, I advised her to defer having any operation performed until vision was more impaired; so that, in this case, there was an opportunity of examining the eye in an early stage of the disease, and of observing that the opacity commenced in the centre of the lens; its periphery and the capsule were quite clear. On the right side, when last admitted, there was evident hard cataract. On the left, the cataract presents a mixture of two colours, which, when the eye has been at rest and the pupil dilated, can be distinctly seen as a slate gray above, and a well-marked amber tint below. When the head is moved rapidly about, or the eye rolled or rubbed with the finger, these appearances alter, the amber colour appearing to have mixed with the gray. After a time, they again separate, and the shape of the solid nucleus of the lens can be distinctly seen below, as shown in the accompanying wood-cut taken from a coloured drawing made at the time: the line of demarcation between the solid opaque body and



the supernatant fluid being distinctly marked, and the semicircular mass proving its solidity. The anterior capsule was perfectly clear, but apparently in contact with the iris; it did not, however, bulge that membrane forward into the anterior chamber, as is stated by some writers to be a symptom of this form of cataract. The sclerotic was traversed by a number of long tortuous vessels, which, coming up from behind, dipped through it at about the eighth of an inch behind the cornea, particularly at the upper portion, where their entrances were marked by dusky olive-coloured spots, caused by the pigment beneath bulging into apertures enlarged by the previous distension of these congested vessels. These spots appeared chiefly upon the superior hemisphere.

Upon the 21st of May, I passed a needle through the nasal side of the cornea, and, turning its flat cutting edge towards the lens, made a crucial incision of the capsule, when the grayish fluid contained within that envelop immediately spirted out, and, mixing with the aqueous humour, rendered the whole anterior chamber turbid. After some minutes the eye was again examined, when the milky fluid was found to have gravitated to the bottom of the chamber, leaving the upper half clear; and in the lower angle formed between the cornea and iris could plainly be seen the *debris* of the disintegrated lens somewhat resembling an onyx. While opening the capsule, I could plainly feel the hard nucleus of the lens, which could afterwards be seen of an amber colour, occupying the pupil. Upon looking at the eye in profile, the cut portions of the capsule standing out into the anterior chamber were plainly discernible. The patient was removed to bed, and an opiate administered, having had, before she left the operation-theatre, the usual caution given to her—to inform the nurse if she experienced pain. During the night violent pain in the eye, attended by some sickness of stomach and retching, came on. The patient, however, made no complaint, as she was afraid of being bled or cupped, which she was aware, from the cases around her, was the usual practice on the accession of inflammation. It was not, therefore, until the afternoon of the following day that her state was discovered, when the resident was called to see her, on account of the violent retching which she then suffered from. Upon examination, all the symptoms of violent inflammation presented; the upper lid was red and oedematous; there was intolerance of light, mucous discharge, and profuse scalding lachrymation. Upon opening the lids, an extensive chemosis of the conjunctiva of a copperish red colour, shining, and apparently caused by the infiltration of

serum into the sub-conjunctival cellular tissue, bulged forward and overlapped the lower edge of the cornea. The cornea itself was of an ashy-gray colour, had lost its transparency, and looked like a piece of muffed glass. Previous to my arrival, several leeches had been applied to the temple and over the malar bone, as the woman obstinately refused to allow herself to be cupped or bled. In this unpromising state of things, I determined to evacuate the contents of the anterior chamber, and so lessen the pressure which threatened the destruction of the cornea. I accordingly, in the presence of Dr. Kirkpatrick and Mr. Thornton, the resident, introduced Walker's grooved knife obliquely upwards through the lower portion of the cornea, and thus rapidly evacuated the entire contents of the anterior chamber, consisting of a muddy gray fluid. I had the extreme satisfaction to observe, that almost immediately the brilliancy and transparency of the cornea were restored, and the iris and lens could be plainly seen, the latter partly dislocated and bulging the edge of the pupil upwards and forwards. The patient experienced immediate relief from the intense pain and feeling of distension from which she had suffered for many hours previously. I likewise excised with a curved scissors a portion of the chemosed conjunctiva, and thus allowed the fluid contained within its bag to become expressed. By this means, also, some slight local depletion was induced, and the congested vessels relieved. The effect, in this case, was almost magical, as I assured myself, before the operation that the grayness of the cornea was not caused by the colour of the fluid behind it, but was induced by pressure such as we may produce in an eye removed from the subject by squeezing it in the hand. Some more leeches were applied, extract of belladonna was plentifully smeared round the brow and orbit, and, when the leeches had ceased to bleed, a full opiate was administered.

Upon the 23d, the oedema of the lids and the chemosis had quite subsided; the redness of the globe was lessened considerably, and the patient was free from pain. Upon the 6th of June, the conjunctiva and sclerotic having resumed their natural appearance, I extracted the hard nucleus of the lens, which, as already stated, was bulging forward through the upper segment of the pupil. Some difficulties presented, owing to the irritability of the eye, the timidity of the patient, and the circumstance of the anterior chamber being so much encroached on by the distorted lens as to prevent a fair section of the cornea being made in the usual manner. I made the upward and outward section, and slightly enlarged it with a scissors. Upon pressure being made in the usual manner, the lens protruded between the lips of the incision; it was then transfixed with the curette and removed. There was no gush of vitreous humour, but the fluid which flowed from the eye, when felt between the fingers, was sticky and glutinous, showing that the vitreous humour was fluid, as I believe frequently happens in cases of Morgagnian cataract. The lens was of a dark amber-colour, oval, smooth, and rather more polished on its surface than cataracts usually present; the anterior surface somewhat flat, and the posterior rather more convex than natural, as shown in the previous illustration.

This case went on well; the woman recovered rapidly, without any untoward symptoms, and returned to the country seeing perfectly, and with a circular and mobile pupil.

The fourth case occurred during the present year in the person of a man aged 65. He was blind of both eyes; in the left there were evident traces of previous inflammation; the iris was altered in colour and structure, and its whole pupillary margin firmly attached to the capsule of the lens. On the right side the eye was more healthy, the iris natural, the pupil mobile and unattached; the lens was opaque, and of a peculiar uniform dull, homogeneous, drab colour. I suspected that this was a case of partially fluid cataract, but it did not at any time, even when the pupil was artificially dilated, present the appearance of Morgagnian cataract. In order to test the consistence of the lens, I introduced a fine needle through the cornea, and, having incised the capsule, found my suspicions confirmed, for a muddy, brownish-coloured fluid immediately rendered turbid the aqueous humour. Having already had experience of the consequence of allowing this irritating material to remain in the anterior chamber, I immediately allowed it to escape by introducing the grooved

knife as in the former case. Upon the chamber becoming clear, the brown lens was then seen completely filling the pupil. Six hours after the operation, violent pain came on, attended with the usual symptoms of internal inflammation, and accompanied by vomiting. Upon examining the eye, the aqueous fluid was found to have been regenerated, and there was no dislocation of the lens. The usual treatment was resorted to, consisting of local depletion, opiates, camphor, and the application of belladonna to keep the pupil dilated and prevent adhesion. In the course of a few days, a secondary attack of inflammation, chiefly engaging the sclerotic and iris, came on, for which tartarized antimony, calomel, and opium, in small and frequent doses, had to be administered. Under this treatment and occasional blistering, the iris resumed a healthy appearance in about two months. At the end of the ninth week, I proceeded to extract the lens, which proved to be of the usual diameter, but thinned from before backwards, and, like that in the third case recorded, was remarkably smooth and polished on its surface. I made a full section of the upper segment of the cornea, on completing which a greater quantity of fluid was evacuated than could possibly come from the anterior chamber. It was also a glutinous consistence, and continued to pour from the eye each time the pressure was made to evacuate the lens, evidently showing that the vitreous humour was fluid. I therefore passed the curette underneath the pupillary edge of the iris and behind the lens, and, by turning its curved point forwards, fixed it in the lens, and drew it forth without difficulty—a manoeuvre to which I resorted in the first case as previously described. This man recovered without a single bad symptom, and returned to the country with very good vision.

The foregoing cases speak for themselves, and, having already occupied so much space in their recital, I do not think it necessary to offer many observations upon them. The chief point of practical importance which they inculcate is that of extracting at once, in all similar cases; as the presence of the fluid portion of the cataract in the anterior chamber, for ever so short a time, seems to produce a most deleterious effect.

54. *Osseous Cataract*.—It has long been known to the profession, that the injurious effects of a foreign body embedded in the eye are not confined to the organ itself, but that the other eye is liable to be impaired, or even destroyed, by sympathetic inflammation. It may not, however, be so generally known, that the textures of the eye itself, under certain pathological conditions, may act as foreign bodies, producing the same distressing symptoms, and requiring operative means for their removal. This fact is well illustrated by a case which lately occurred in the hospital, under the care of Dr. Taylor.

The patient, a man 35 years of age, received a punctured wound of the eyeball, fourteen years ago; inflammation ensued, vision was totally lost, and the eye gradually became atrophic. He suffered no further inconvenience until a few months previous to his admission, when the injured organ became exceedingly troublesome; there was constant conjunctival inflammation, intolerance of light, spasm of the eyelids, and frequent and severe attacks of pain of a neuralgic character. His chief source of anxiety, however, was the condition of the other eye, the sight of which had become so weak as to prevent his working for more than a few minutes at a time.

The injured eye was about one-fourth less in size than its fellow, and soft and flaccid to the touch; the cornea was dull and glassy-looking, and did not measure more than one-fifth of an inch in diameter; the conjunctiva was covered with large, tortuous vessels, through which a faint pink ring could be seen encircling the cornea; the spasmodic closure of the eyelids rendered it difficult to obtain a clear view of the pupil, but a cataract, of a dull straw colour, could be seen lying in the posterior chamber, and pressing apparently against the iris.

Various palliative remedies were tried, but without affording permanent relief, and, as the vision of the other eye became rapidly weaker, the patient willingly consented to have the cataract, which was evidently the source of the irritation, removed.

The operation was accordingly performed on the 14th July. After putting

him under the influence of chloroform, Dr. Taylor divided the cornea by the upper section, as in the ordinary operation for extraction, and, as the opening thus made was very limited, owing to the atrophied condition of the cornea, enlarged the incision on each side, through the sclerótica. On introducing the curette, the instrument grated as against a piece of stone. The cataract was firmly adherent to the subjacent parts; but the iris was free. Pressure had not the slightest effect in dislodging it; it required considerable manipulation and no small degree of force before it could be removed by a small but strong hook; it came away entire, and without any escape of the vitreous humour.

The man suffered a good deal of pain during the first night, but not afterwards; the wound healed rapidly; the irritation completely subsided in the other eye; he left the hospital in a week, and three weeks after the operation he was again at work.

The cataract was of a straw colour, semi-globular in form, smooth and regular in front, rough, tubercular, and flattened posteriorly where it had been adherent. Here a small portion of the lens in a softened condition was visible, and when this was removed the osseous deposit was found to have involved not merely the capsule, but the greater part of the lens also, which was converted into a solid mass of stony hardness. This condition of the lens is of very rare occurrence. Mr. Wardrop, Mr. Tyrrell, and M. Desmarres have each met with one instance, but in every other case of osseous cataract, so far as we are aware, the change has been confined exclusively to the capsule, forming a thin shell, which, by breaking under the instruments employed for its removal, adds to the difficulty of the operation.

Our limited space will not permit of any further remarks upon several interesting points in the pathology and treatment of osseous deposits within the eye; but we cannot conclude without calling especial attention to the firmness with which the lens adhered to the subjacent parts in this, as well as in several other instances recorded in the journals, a complication not alluded to by any of the systematic writers, with the exception of M. Desmarres, and one which might occasion considerable embarrassment to an operator ignorant of the possibility of its occurrence.—*Med. Times and Gaz.* Feb. 26, 1853.

55. *Abscess within the Orbit, producing Chemosis, by which the Vitality of the Cornea was destroyed, and the Eye lost—Secondary Deposit of Pus in the Brain, causing Death.*—The patient, a tall and slender girl, 15 years old, was sent to Mr. Walton, by a surgeon in the city, on the 17th of December last, in the following state: There was an abscess, but not a large one, pointing just under the upper and inner angle of the left orbit. The palpebræ were a little swollen, the upper one somewhat shortened, and the tarsus elevated, from the effects of former abscesses. The eyeball was entirely surrounded by a very prominent chemosis, that covered all the cornea, except a small central bit, which was quite bright. Vision was unaffected, but there was intolerance of light, caused by the constant exposure of the eye, for the lids could not be closed on account of the injured palpebra and the chemosis, and to remedy which she wore a bandage. There was a little, but only a very little, purulent secretion from the conjunctiva.

The history runs thus: Four years ago, the girl had an abscess at the upper part of each orbit; they burst, and healed after discharging a few weeks. There were several recurrences of these; the last interval being a duration of about three months. Now, for the first time, only one orbit is the seat of supuration.

Mr. Walton pointed out to the mother of the girl the necessity of the abscess being opened, and the chemosis freely divided, and the imminent danger to the eye in case the latter was not executed. Such treatment, however, was positively objected to by her.

On the 21st, three days after, she was again brought to Mr. Walton, in a very debilitated state; when he last saw her she was not feeble. The abscess had burst, and the chemosis had subsided a little, but, unfortunately, the cornea had become opaque and ash-coloured. Being in great pain, she now desired to have anything done that might relieve her sufferings and restore her

sight. Mr. Walton divided the chemosis, to afford a chance, if, indeed, any remained, of saving the cornea; but its vitality was lost, and the greater part of it separated while some blood was being wiped from the surface of the eyeball, leaving the iris and the lens exposed. He also enlarged the abscess aperture. In four days the pain in the eye had ceased, and the chemosis had nearly subsided, the abscess discharging all the while. The poor girl now thought that her sight would be saved, for she could discern large bodies; but this repite of vision was soon lost by the pupil closing. She continued to improve in health, and the abscess secreted less.

On the 1st of January she complained of occasional slight headache; on the 3d, she kept her bed, yet took her food with a tolerable appetite. Her father went to fetch her some drink, at her own request, and when he returned in a few minutes, she was dead. Mr. Walton obtained leave to examine the head, but that only, and has kindly allowed us to make the following condensation from his notes:—

Post-Mortem Three Days after Death.—The brain was first examined. The surface, that is, all which was visible by the removal of the calvarium, was not abnormal, nor were its membranes unhealthy; but within the centre of the anterior lobe of the left hemisphere, was a deposit of about a teaspoonful of pus, the cerebral matter around being slightly broken down. Attention was carefully directed to ascertain if there was any communication between this and the abscess in the orbit, but none was detected. The parts passing through the several orbital foramina were perfectly healthy, and the only other indication of disease within the skull was the readiness with which the dura mater could be separated from the orbital plate of the frontal bone. The orbit was now inspected. Between the periosteum and the roof of this cavity the original abscess was found to be situated; less pus was here than in the brain. The several tissues in the orbit were perfectly normal. The eyeball was partly collapsed, but its tunics were natural. The entire portion of the upper wall of the orbit, including the superciliary ridge, presented the appearance that is characteristic of chronic inflammation of bone, and the superciliary ridge of the other orbit exhibited the same, but in less degree.

The following points in this peculiar case demand attention:—

1. The symmetrical appearance of the primary affection, each orbit having been attacked alike; this being significant of the constitutional origin of the complaint.
2. The purulent, or secondary deposit, as such collections are generally called, within the brain; the principal peculiarity being the rareness of such an occurrence in this organ.
3. The mildness of the cerebral and general symptoms in conjunction with so great a lesion of the brain, for there was almost an absence of constitutional disturbance—if the report of the mother be accredited—there being no febrile manifestations, and but little depression, after the severity of the acute attack of suppuration in the orbit had subsided, and at the time when the cerebral disease was going on; and but slight headache, without any paralysis, and without sickness or mental aberration.

4. The production of chemosis, from abscess within the orbit, to a degree sufficient to destroy the cornea, and by that the eye. This, bearing as it does on what may be termed the surgery of the case, admits of several practical observations.

The cases in which chemosis is usually injurious, are those of purulent ophthalmia, whether arising from inoculation, injury of a mechanical nature, atmospheric, or other causes; and in those the conjunctiva seems to be the structure primarily affected. Here, however, is a remarkable exception; the conjunctiva was raised around the cornea, and partly covered it, as a secondary result of an abscess in its vicinity. Perhaps a similar effect is produced in those instances of destruction of the eyeball, in phlegmonous erysipelas of the head and face. The eyelids being closed by their tumefaction, precludes a sight of the state of the eye, and the changes that are being effected in it.

The opportunity of dissecting the eyeball in the case under consideration, whereby all its proper tunics, except the cornea, was discovered to be healthy,

demonstrates, in the most direct and unmistakable manner, the fact that the destruction of the organ was directly produced by the mechanical interference with the nutrition of the cornea by the chemosis, its supply of nutrient material being partly or entirely arrested, a result which must always supervene when chemosis arrives at a certain density, for it is the nature of the fluid effused in the sub-conjunctival areolar tissue on which the effect of the chemosis depends. Mere effusion of serum, although the conjunctiva may be considerably raised, matters nothing. Very different is it, however, when the effusion is of a fibrinous nature, the result of an attack of acute inflammation.

Although, through the perverseness of the poor girl, the period for the effective treatment of the ocular disease was allowed to pass, and there is no scope for clinical remarks concerning the result of the measure adopted—namely, that of incising the conjunctiva—it may not be out of place to describe Mr. Walton's method of executing this, the most effective manner, as modern practice shows, of dealing with that dangerous state of the eye.

Mr. Walton employs a small curved knife, as he considers a straight one insufficient for the purpose, because it cannot be carried effectually through the chemosis, that is, through the entire extent, without wounding the lid, and, perhaps, the eyeball also; and it should be borne in mind, that the result of the operation mainly depends on the manner of its execution.

The eye is fairly opened, the upper lid raised with the lid retractor by the operator, who stands behind the head of the patient, the lower depressed by an assistant. The curved knife, held vertically, is introduced at the edge of the chemosed conjunctiva (Mr. Walton usually divides the lower part of the chemosis first), and carried along the surface of the cornea and the sclerotica to the sinus of the lid, the handle then depressed, so that the palpebral chemosis may be reached by the instrument; this is then traversed by the blade, and the whole divided by an outward stroke. Three or four incisions are thus made. The division of the upper portion of the chemosis is not so readily effected, in consequence of the different construction of the lid, and the necessity of using the retractor; but the impediment is readily overcome, by applying the retractor first on one side of the lid, to make room for the knife, and then shifting it to the other. An active and intelligent assistant is required to use the sponge frequently, that the operator may have a constant view of the course of the knife; and, unless the eyeball is freed from blood, it is not possible to enter the knife safely or correctly.—*Med. Times and Gaz.* Feb. 26, 1863.

MIDWIFERY.

56. *The Esquimaux Female Pelvis*.—Dr. JAMES STRUTHERS exhibited to the Edinburgh Obstetrical Society (April 14, 1852), the pelvis of an Esquimaux woman which he had received from Mr. George C. Pirie, of Dundee, who obtained it last summer while acting as surgeon to a whaling vessel. It was found near Cape Hooper, on the coast of Davies' Straits, in latitude 68.6 N., longitude 64.36 W., under a cairn of stones—the usual mode of burying there. As a specimen of the pelvis of this division of the Mongolian race, it is interesting from its rarity, but chiefly from the unusually large dimensions of the brim, cavity, and outlet.

In its form, it approaches the square, the distinctive character, according to Weber, of the Mongolian pelvis; the transverse diameter exceeding the conjugate by $1\frac{1}{2}$ inch.

The brim is $16\frac{1}{2}$ inches in circumference, being 2 inches more than in a large European pelvis. The diameters of the brim are:—

Transverse,	.	.	.	6 inches
Conjugate,	.	.	.	$4\frac{1}{2}$ "
Oblique,	.	.	.	$5\frac{1}{2}$ "

The first being $\frac{3}{4}$, the second $\frac{1}{2}$, and the third $1\frac{1}{4}$ inch larger than in the standard assumed by Ramsbotham.

The diameters of the cavity are :—

Transverse,	. . .	5½ inches.
Conjugate,	. . .	5¼
Oblique, .	. . .	5½ “

An increase over the standard of 1 inch in the antero-posterior, and of ½ inch in the two other diameters. The *outlet* is also very capacious; the transverse diameter being 5½ inches; the conjugate about the same; while the pubic arch is unusually wide. The depth of the cavity is much the same as in the European pelvis.

This being the only specimen of an Esquimaux pelvis that Dr. S. has had an opportunity of examining, no general deduction of course can be drawn as to the pelvis of the Esquimaux being larger than that of the European. It is worthy of observation, however, that parturition among the Esquimaux, whatever be the cause, is by all accounts much more rapid than with us—so rapid, indeed, that, after making all due allowance for the child being smaller, which is the case, and for the half savage condition of the natives, we can scarcely avoid the inference that something may be due to the maternal passages being wider in the one race than in the other. Crautz, in his *History of Greenland*, states that parturition among the Esquimaux is both rapid and easy; and Mr. Pirie, during his residence there, received many accounts to the same effect. Mr. Pirie also collected some curious information as to the manner in which the accouchements are conducted, the leading feature of which is that the whole process is left entirely to nature. Till within a few hours of labour, the woman goes about her usual duties. As soon as she feels unwell, she retires to a skin hut built for the purpose, which is so small as to confine her almost entirely to the recumbent posture. No one is allowed to be present while labour is going on; and the woman, it is stated, generally makes her appearance within the hour, carrying the child in the hood attached to her dress.

It is the general belief that the child is not separated from the placenta until the latter is expelled, and that the division is effected by the mother gnawing through the cord. The Greenland women, according to Crautz, are not very prolific, seldom having more than three or four children, between each of which there is generally an interval of three years. When told of the fecundity of Europeans, they compare them contemptuously to their dogs. Miscarriages, twins, and monsters are very rare; and scrofula and rickets are almost unknown. The children subsist for three or four years solely on the mother's milk; there being no other nourishment suitable for them. If another child be born before the mother has ceased nursing (not an uncommon occurrence), the latter frequently dies in consequence of being deprived of its supply of milk; and should the mother die while the child is young, it, as a necessary consequence, does not long survive her.—*Monthly Journ. of Med. Sci.* Aug. 1852.

57. *Indian Hemp as an Oxytocic.*—Dr. JOHN GARCOZ has been induced, by the reports of Drs. Churchill, Simpson, and Christisen, to try the powers of the Indian hemp as an oxytocic. He has employed the tincture of cannabis indica (24 grs. ext. to 3j) in sixteen cases of labour. “In nine of these,” he says, “though given to the extent of ʒijss, in separate doses, of 25 and 35 drops at a time—in some in quick succession, in others at longer intervals—I could not perceive any increased uterine action, nor the slightest physiological change in any one way during labour or afterwards, with the exception of one instance of sleep (much required at the time) in a lady, far from strong, confined of her third child, and much exhausted by inefficient throes, in whom the third ʒss dose completely arrested the pains and induced sleep, which continued for an hour, when she awakened refreshed. Labour then set in in earnest, chloroform was given, and the child was speedily born. These nine cases made good recoveries.

In the seven cases in which the tincture of hemp succeeded so well with me, five were cases of first confinement, of satisfactory, though very slow, labour, and phlegmatic temperament. I have noticed the contractions acquire great increase of strength and frequency immediately on swallowing the drug, and have seen four or five minutes elapse ere the effect ensued; and if none was

induced within the latter space of time, I have not observed its effects at all afterwards, notwithstanding repeated doses. In these few cases, I had opportunities of giving it from the time when the os uteri would admit the point of my finger till the expulsion of the child. Judging from experience, I believe that, in appropriate cases for the use of this stimulant, and when effectual, it is capable of bringing the labour to a happy conclusion considerably within a half of the time that would otherwise have been required, thus saving protracted suffering to the patient, and the time of the practitioner.

I have not observed it to possess any anæsthetic effects. I have used it in two cases along with the inhalation of chloroform, and I did not observe that that agent interfered in any way with its action.

When the effects of the hemp were subsiding, I have been able to recall and keep up "the good pains" by the addition of ten drops given from time to time. I consider the expulsive action of the cannabis to be stronger than that of the ergot, but less certain in its effect; and it has the advantage over the ergot, of usefulness in the early stage of parturition. I believe that the previous ineffectual administration of the hemp does not interfere with the after exhibition and full working of the ergot.

Such are my brief observations on the new and interesting use to which Bang, or the Hachisch of India, has been put. In the few cases in which I thought its administration safe, and not counterindicated by malformation, etc., you have given the result of those in which this effect was, and was not, displayed. I cannot conclude these remarks without entering my dissent against the use of uterine medicinal stimuli in general, on account of the frequent difficulty of accurate conception of relative dimensions of parts, etc. Yet all obstetricians must acknowledge that, in many cases, such stimuli are indispensable; and to be possessed of one capable of so early application, is decidedly a matter of much importance. I would also notice that, in labour, whether the cannabis shows its peculiar effect on the uterine contractions, or not, there seems, as in tetanus, etc., to be a very great tolerance of the drug—nor have unpleasant consequences, so far as I have seen, appeared afterwards; and, whilst it is acknowledged as a powerful controller of inordinate muscular spasm, it is equally in many cases, a powerful stimulant of the uterine muscular fibre in labour, if not in the unimpregnated state.—*Monthly Journ. Med. Sci.* Aug. 1852.

58. *Observations on the Induction of Premature Labour before the Seventh Month of Pregnancy.* By ROBERT LEE, M.D. (Proceedings of Royal Medical and Chirurgical Society, Feb. 5, 1853).—In the year 1812, in the third volume of the *Transactions* of the Society, Dr. Merriman had published a paper entitled "Cases of Premature Labour Artificially Induced in Women with Distorted Pelvis, to which are subjoined some Observations on this Method of Practice." The author thought it significant that in thirty-two volumes of the *Transactions*, embracing a period of forty years, there did not occur the history of a single case to illustrate this important rule of practice; while in these volumes there were reports of ten cases of Cæsarian operation. Of the safety, efficacy, and morality of inducing premature labour, in conformity with the rules inculcated by Dr. Merriman, the author thought most British and some foreign practitioners were convinced; but in respect to the induction of premature labour before the seventh month and in first pregnancies, to obviate the danger of craniotomy and the fatal effects of the Cæsarian section, in cases of great distortion of the pelvis, little had been said by writers on midwifery. To justify the practice, which the author regarded as equally safe, efficacious, and moral, before as after the seventh month of utero-gestation, and in a first as in any subsequent pregnancy, he submitted the history of a successful case, which was attended with peculiar complications and formidable difficulties.

In October, 1849, with Mr. Booth, of Queen Street, Westminster, he saw Mrs. S—, who had been in labour forty-eight hours, and whose pelvis was distorted in the highest degree from mollities ossium. After perforating the head, which had not entered the brim of the pelvis, and by tearing in pieces the bones with the crotchet, delivery was accomplished after two hours' violent ex-

ertion. The partially dilated state of the os uteri greatly increased the difficulty and danger of the operation. The patient recovered without any unfavourable symptom. In December, 1852, the author learned from Mr. Booth that the patient was again pregnant; and in the fifth month, some diagnostic symptoms of pregnancy being absent, any interference was postponed for another month. In January, 1853, the movements of the fœtus could be distinctly felt, and the necessity for immediately attempting to induce premature labour was obvious and urgent. The great distortion of the pelvis (the tuberosities of the ischia were almost in contact, and the sacrum projected forward so as nearly to touch the front of the pelvis) presented unusual difficulties, seen in reaching the os uteri for the purpose of introducing the stiletted catheter to puncture the membranes. After a time, the fore and middle fingers of the left hand were passed into the vagina, and the anterior lip of the os uteri was touched with the tip of the forefinger; the instrument was then guided into the cavity of the uterus, and the membranes punctured. The liquor amni continued to flow till the morning of Friday, the 7th of January, when labour pains came on. At 2 P.M. the os uteri was so much dilated that the points of two fingers could be introduced, and the nature of the presentation ascertained. It was not the head, but whether shoulder or nates could not be determined. At 7 P.M. the right hand was hanging out of the external parts, and the shoulders and thorax had sunk deeper into the pelvis. On a careful examination, it was found that the tuberosities of the ischia had been pressed considerably apart, the short diameter of the outlet being thus increased; and there was little doubt but that the bones at the brim had also yielded somewhat to the pressure. The shoulder being brought down as much as possible, the viscera of the thorax were removed by the crotchet; and after fixing its point in the spine as near as possible to the pelvis, after strong traction, the nates and lower extremities were drawn through, and the other superior extremity soon followed. But little difficulty was experienced in crushing or extracting the head. The placenta soon followed. Three weeks after the delivery, the author received a satisfactory communication from Mr. Booth, stating that the patient had progressed very favourably.

Dr. LEE said that his object in narrating the case was to bring under the consideration of the Society the propriety of inducing premature labour, in certain cases, before the seventh month of pregnancy, to prevent the necessity of resorting to other and dangerous operations. With respect to the production of premature labour after that period, full discussions had taken place. With regard to the question put by the President, he might remark that it was most difficult to determine the exact measurement during life, but that he had never seen a pelvis with a less diameter than in the present case; and after this he felt confident that if premature labour was induced before the seventh month, no case could occur in which delivery could not be effected. In this case, also, it might be remarked that the diameter of the pelvis had been increased by the pressure of the head of the child, in consequence of the bones being affected by mollities. This might reasonably be expected to occur in cases of a similar kind. He wished to know if any one objected to the course of proceeding which he had recommended previous to the seventh month, to prevent the necessity of craniotomy, or of the Cæsarian section. He might here remark that he had the best reason to believe that one fatal case of Cæsarian section had occurred since the discussions on that subject before the Society; and this, too, in an instance in which it would not have been so difficult to effect delivery as in the case before the Society. That operation, however—he meant the Cæsarian section—had not been recorded.—*Lancet*, Feb. 19, 1853.

59. *Induction of Premature Labour in Cases of Deformed Pelvis.*—Dr. ATTHILL read a paper on this subject to the Dublin Obstetrical Society. He drew the attention of the Society to the old methods of induction, and enumerated the various objections to each of these modes. He then detailed a case in which the douche bath (after the manner of the Vienna Lying-in Hospital) was successfully used. The case was that of a woman four feet and a half in height, and greatly deformed from angular curvature of the spine, the result of caries

of the vertebrae, from which she had suffered when twelve years old. The curvature included the last dorsal and all the lumbar vertebrae; and there also existed an appreciable diminution in the pelvic space. In September, 1849, she was admitted into the Rotundo Lying-in Hospital for her first confinement, when it was found necessary to lessen the head, after a rather protracted labour. In September, 1850, she was again admitted, and this labour was but a repetition of her first. It was then explained to her that she could not give birth to a living child at full term, and she was recommended that, if she again became pregnant, she should come into hospital when she was seven months gone with child, and submit to the induction of premature labour. Accordingly, in June, 1851, she again presented herself in the seventh month of gestation, but before any steps could be taken her husband removed her, having been told that if she submitted to any operation she might die; so that she was lost sight of until the 26th of August following, when she was brought into hospital in strong labour, and again for the third time the crotchet had to be used. On being discharged after her recovery, the necessity of her presenting herself at the termination of the seventh month (should she again become pregnant), was strongly urged upon her; and she acted according to this advice, for she came to the hospital on the 10th of September, 1852, being seven months pregnant. It was now determined to try Kiwisch's method of induction, the douche bath. The apparatus used in this case was a tin vessel, capable of containing two gallons of water, and to this was affixed a flexible tube, furnished with a stop-cock, terminating in a bone nozzle about five inches in length. The vessel was raised about five feet above the bed on which the patient lay supine, the pipe of the tube was introduced into the vagina, the stop-cock turned, and the stream directed against the os uteri by means of the index finger inserted along with the nozzle. Saturday, the 18th of September, was the date of the first application, and even this seemed to produce a marked effect, for, on examination immediately after, the os uteri felt soft and relaxed. The douche was repeated, morning and evening, regularly, until the following Friday (except on Wednesday night, when the tube by some accident got out of order). After the second application, the os began to dilate, and continued to increase a little in size on each application, until after the sixth douche, when it had attained the magnitude of a half-crown, but then it ceased to enlarge. On Friday afternoon, having been subjected twelve times to the douche, she complained of pain in her back, and asserted that she felt certain her labour was approaching. Next morning, at 11 o'clock, the pains came on regularly, though feebly; at 7 P.M., the membranes ruptured, the os being fully dilated, and the pains grew most powerful; the head gradually descended into the pelvis until 9 P.M., when it almost rested on the perineum, but, although uterine action was strong, it ceased to advance further; and at 11 o'clock, no progress having been made for two hours, she was delivered by the forceps (while under the influence of chloroform), of a small, living female child about the seventh month. The two first days it had to be spoon-fed, but afterwards it took the breast freely. The mother recovered without the slightest drawback, and she and the child went out well on the ninth day. Dr. Atthill said that, comparing this case with those given by Dr. Arneth, of Vienna, it appeared that it required the exact number of douches (viz., twelve) to bring on labour, which he found to be the average. The height from which the water flowed was, however, much less than that which he directed; and Dr. Atthill consequently considered that any great height was unnecessary.

The result of this case Dr. Atthill thought most satisfactory, and to the method of induction he considered there could be no valid objection, the worst result being failure, and that this was very unlikely to occur, for, out of the six cases recorded by Dr. Arneth, in only one did the douche fail. Dr. Atthill preferred this mode of induction to any of the other plans recommended by authors, because no possible injury could be done by the employment of the douche bath to either mother or child; and in its application it was simple in the extreme. He concluded by remarking, that, since writing the foregoing paper, he had seen the details of a case in which the douche had been successfully applied by Dr. Tyler Smith, of London. [See preceding Number of this Journal, p.

249]; and the only difference that existed in Dr. Smith's case from that just related was, that alternate douches of hot and cold water were used by Dr. Smith; and that this might have been the reason why only five applications were necessary; but that this fact was by no means proved, for in one of Dr. Arneth's cases only two were required. Dr. Atthill considered, however, that it would be worth while to test the fact by further observations.

Dr. CHURCHILL remarked, that Dr. Simpson, of Edinburgh, was in the habit of using effectually a simple form of syringe for such purposes, which he would consider preferable to the syphon douche, as being more simple and more easily applied; it generally brought on labour after four, five, six, or eight applications.

Dr. MCCLINTOCK stated, that the only objection which, in his opinion, could be urged against this method of inducing premature labour was, the facility, certainty, and safety with which it could be made use of for criminal purposes, were it generally known to the public.—*Dublin Quarterly Journal*, Feb. 1853.

60. *On Degeneration of the Placenta at the End of Pregnancy.* By ROBERT DRUITT, M. D. (Read before the Royal Medical and Chirurgical Society, Jan. 25).—The subject of degeneration of the placenta had been already brought under the notice of the profession by Dr. Robert Barnes, but before the real value of this subject of investigation could be estimated, the author thought the following questions should be answered—viz., first, how far, and under what circumstances, could it be regarded as a normal condition? secondly, how frequently, and to what extent, might it be present without any ill consequences ensuing? The author defined the term degeneration to express the loss of those characteristic parts or marks of any given structure which were most intimately connected with its functions. Such a change, Professor Paget had remarked, bore witness rather to a deficiency than to a perversion of nutrition. There was no development of any new organic form; but, instead, a tendency to infiltration with oil-corpuscles or with earthy matter. In structures whose existence was shorter than that of the system of which they formed a part, or in organs which had occasional periods of activity, such changes were met with at the termination of those periods; and it might be produced in any organ by depriving it of the exercise of its functions. Thus degeneration was to be looked upon as a part of the natural as well as of the morbid history of the animal economy. Now, the placenta, being *par excellence* a temporary organ, might fairly be expected to be prone to degeneration at the close of the term of its office; and this the author believed to be true, and that almost every placenta expelled at the full time exhibited some signs of that change. The fact was notorious, that various deviations from perfect structure were constantly found in placentæ; in favourable cases the fact was passed by as of no consequence, but in unfavourable cases, the placenta being more closely scrutinized, these appearances had been attributed to inflammation and effusion of lymph. The author confessed to have fallen himself into the error, till the paper of Dr. Barnes revealed the true nature of these alterations; and being soon convinced that degeneration of the placenta was by no means of uncommon occurrence, he determined to institute a more strict inquiry, the result of which was embodied in the present communication. For the sake of a clear definition of the term employed, the author briefly detailed the histological elements of the placental structure, and thus observed that the forms of degeneration commonly seen in the placenta were the earthy and the fatty. The earthy was so common, that he doubted whether any full-grown placenta could be met with that did not exhibit traces of it. These earthy deposits, examined microscopically, were seen as minute transparent crystals within the investing decidual cells of the foetal villi. This earthy matter was quickly and entirely soluble in acetic acid, with copious effervescence. The fatty degeneration was as common as the earthy, and was generally met with in the same placenta, though not in the same parts, nor in equal degree. It had been most fully and accurately described by Dr. Barnes and Dr. Hassall, and the author added some minute details of the progress of the fatty deposit in the pre-decidual cells, in which it commenced first as single globules, and then aggregated in clusters in the cells.

In some cases the oil did not increase in proportion to the degree of degeneration; in fact, neither the oil globules nor the earthy crystals were to be looked on as more than accidents, and not as constituting the essence of the degeneration; but whether so or not, the affected tufts became tallowy, exsanguine, brittle, and difficult to unravel; whilst in the extreme stage there was produced a white, glistening, translucent, amorphous substance, of gristly consistence, and breaking in all directions into sharp angular fragments. But in this apparently structureless substance the foetal vessels might, by careful examination, aided by maceration, be detected cropping out here and there on the broken surfaces. In this extreme degree of degeneration there was very little oil. Acetic acid caused the mass to swell up and become translucent. The author then gave the details of the microscopic examination of thirty placentæ occurring consecutively in his own practice; in each, either fatty or earthy degeneration had taken place. He conceived that the true explanation of these phenomena must be looked for in the general analogies which regulate the growth of temporary organs. The placenta was the nutrient organ of a parasite, which inhabited its parent till it had attained a certain degree of development. Its cells, like other cells in the condition of active growth, had the power of appropriating nourishment from any parts with which they were in contact. It was probable that the size and condition of the placenta bore a strict proportion to the wants of the foetus and to its powers of assimilation, and that, on the one hand, a placenta of perfect structure showed that the functions of the organ were actively carried on; on the other hand, degeneration testified either that the organ was originally formed on an unnecessarily large scale, or that the foetus could not appropriate the supplies furnished by the entire organ, or that the work of development being nearly completed, the active employment of the whole organ had become unnecessary, and portions of it fell into decay. The author offered the three following conclusions as the result of his investigations: 1. That incipient degeneration was a normal condition of the placenta at the end of pregnancy. 2. That it arose from partial cessation of the active functions of the organ when the foetal development was nearly completed. 3. That when it occurred in the earlier months, it probably arose from some antecedent want of nutritive force in the foetus, or by its death. On the subject of inducing premature labour, on the ground of placental disease, the author summed up his communication in the emphatic words of Wilde: "*Nostrum est, summo studio cavere, ne abortus expediatur vel immo excitetur, sed omni arte potius intendere ut prospera et immunis restitatur graviditas; quippe quâ unâ, duplicis vitæ, lætam spem et sinceram salutem recuperavimus.*"—*Lancet*, Feb. 12, 1853.

61. *Albuminuria in Pregnant Females; its Symptoms, Causes, Results, and Treatment.*—[Much attention has of late years been devoted to this affection, and a number of works have recently appeared in relation to it. In the third No. of the *Association Medical Journal*, there is a very interesting digest of some of the principal of these,¹ and which we transfer to our pages.]

¹ 1. LEVER, John C. W., M. D. Cases of Puerperal Convulsions, with Remarks.—*Guy's Hospital Reports*, 2d series, vol. i. p. 495.

2. DEVILLIERS and REGNAULT, MM. Recherches sur les Hydropisias chez les Femmes Enceintes.—*Archives Génér. de Médecine*, 1848.

3. CORMACK, John Rose, M. D. Dependence of Puerperal Convulsions on Toxæmia; Explanation of the more common occurrence of Renal Convulsions in Primiparæ.—*London Journal of Medicine*, June, 1849.

4. BLOT, M. Hippolyte. De l'Albuminurie coïncidant avec l'Eclampsie.—*L'Union Médicale*, Oct. 10, 1850.

5. LITZMANN, Professor (of Kiel). On Bright's Disease,* and Convulsions before, during, and after Labour.—*Deutsche Klinik*, May, June, and July, 1852.

* The term "Bright's Disease" is very frequently used by continental writers in a wider sense than by the English. They appear to express by it all conditions of the kidney in which albumen is found in the urine—from simple congestion up to advanced structural disease.

Albuminuria in pregnant and parturient women has generally been noticed in reference to convulsions, for the most part occurring in primiparæ. The investigation of Dr. Blot and Professor Litzmann were made with a view to determine its frequency during pregnancy.

Dr. Blot found it present in 41 cases out of 205, primiparæ being chiefly affected.

Dr. Litzmann has examined the urine of 131 females; 79 during pregnancy, 80 during labour, and 80 after delivery. He found albumen present in 37, and absent in 95. Of the 95 whose urine contained no albumen, 53 were primiparæ and 42 multiparæ. Of the 37 who had albuminuria, 26 were primiparæ and 11 multiparæ; two were pregnant with twins. Of the 37, the urine of 16 was found to be albuminous during pregnancy; in 10 of these the albumen continued some days after labour; in 4, it disappeared before confinement. In 4 women in whom albuminuria was found after labour, it had probably existed during pregnancy, although the urine had not been examined.

Dr. Litzmann points out that albumen may be present in the urine from vesical catarrh. This can sometimes, but not always, be referred to pressure on the neck of the bladder during labour. It is distinguished from renal albuminuria by the absence of fibrinous casts of the uriniferous tubes, which he found in most of the cases in which the albuminuria had reached a high degree, towards the end of pregnancy.

Symptoms. Nothing certain is known as to the time when the renal affection commences. It usually begins insidiously, and increases slowly; its commencement is, perhaps, rarely denoted by any remarkable symptoms. The only constant sign by which renal disorder during pregnancy is denoted, is the state of the urine. Dr. Litzmann has not observed albumen before the eighth month; but Devilliers and Regnault found it in the sixth. The quantity of albumen is usually very conspicuous, and increases as the time of delivery approaches. In proportion to the intensity and duration of the morbid process in the kidneys, are found casts of the uriniferous tubes in greater or less quantity, the epithelium lining them being sometimes normal, sometimes in a state of fatty degeneration. In the milder cases, the tube-casts are often found just at delivery, or soon after. Careful examination will probably in all cases detect a not inconsiderable diminution of the quantity of urine. Pain in the loins is not diagnostic; but Dr. Litzmann has found tenderness on pressure over the kidneys in nearly all cases—this being absent in pregnant females whose kidneys are unaffected. Dropsy, in many cases, is entirely absent; but more frequently it is considerable. It is favoured by an impoverished state of the blood, and by local impediment to the circulation. The true succession and influence of these causes cannot always be determined. Œdema usually commences in the last four months of pregnancy, mostly in the lower limbs, ascending gradually to the knees, or even higher. Sometimes it is limited to these parts; but oftener extends to the abdomen, and more rarely, as in a case recorded by Dr. Litzmann, to the *labia majora*. A most unequivocal sign of renal disease is œdema of the upper part of the body, the hands, arms, and face; but Dr. Litzmann has several times seen this when there has been no albumen in the urine, although there have sometimes been even headache and transient disturbance of vision. The œdema in these parts generally appears towards the end of pregnancy; sometimes only after the patient has been some time in bed, disappearing when she arises. In the lower limbs, the skin is usually pale and cool, and the finger leaves a depression; in the face, the skin is generally warmer than usual, the cheeks red, the eyelids injected, and the skin elastic. The œdema sometimes appears and disappears irregularly; sometimes it increases up to delivery, and then disappears without leaving any trace of renal disease; and that even when the albumen in the urine has gone on increasing.

6. SIMPSON, Professor J. Y. Albuminuria in Puerperal and Infantile Convulsions, etc.—*Monthly Journal of Medical Science*, October, 1852.

7. COSTILHES, Dr. Case of Convulsions occurring seven hours after Delivery.—*Gazette Médicale*, October 9, 1852.

Mechanical Origin of Albuminuria during Pregnancy. In his paper, of which we have given the title, Dr. Cormack ascribes the frequency of albuminuria (and of convulsions) in primiparæ, to the greater tenseness and rigidity of the abdominal parietes; the gravid uterus being therefore more apt, by its inward pressure, to produce renal congestion. The tight girding of the abdomen, often practised by those who become pregnant out of wedlock, probably acts powerfully in producing the same effect; and may, as Dr. Cormack suggests, explain to some extent, why unmarried primiparæ are more liable than married primiparæ to puerperal convulsions. When convulsions occur in subsequent pregnancies, Dr. Cormack would, believing them to be chiefly toxæmic, ascribe them either to imperfect distension of the abdominal wall, from incomplete gestation on former occasions, to excessive muscular development, to renal disease, or to excessive volume of the uterine tumour, including pleural pregnancies. He says that "the gravid uterus, or other tumour, pressing on the renal veins, or in any way seriously impeding the return of blood from the kidneys, must induce more or less inability on their part to perform their emunctory office."

Dr. Litzmann adopts a similar explanation of the occurrence of albuminuria in pregnancy. "In favour of the mechanical explanation of the occurrence of albuminuria in pregnant women, may be adduced its predominance in primiparæ—a fact recognized by all observers. The tight and unyielding abdominal wall most naturally causes the uterus to press more powerfully on the structures behind and above it." Two of his patients who had albuminous urine, were pregnant with twins; in others, there was a large quantity of liquor amnii, or a large child, or both. In one case, there were periodical spasmodic contractions of the abdominal muscles, especially the recti, pressing the uterus against the spine; in four cases the pelvis was narrow.

Dr. Murphy, in his *Lectures on the Principles and Practice of Midwifery*, objects to Dr. Cormack's explanation—"First, that the pressure exercised by the gravid uterus is of too gradual a nature to cause any great amount of congestion, and the circulation has sufficient time to find new channels for itself, and relieve the emulgent veins. Secondly, the period of the attack would be more frequently at the last month of gestation, or the commencement of labour, than we know it to be." (pp. 379-80.) With deference to so high an authority in matters obstetrical as Dr. Murphy, we do not feel convinced by his arguments. In the first place, the number of cases in which albuminuria has been detected during pregnancy, proves that there must be some impediment to the renal circulation; and we must probably take into consideration not only the unyielding abdominal walls, but also the hindrance to the compensatory circulation through the mammary and epigastric veins, produced by tight stays and other articles of female apparel. Secondly, we find Dr. Murphy himself stating (p. 368)—and this is in accordance with general experience—that the most frequent period of puerperal convulsions is "on the approach, or during the progress, of labour."

Relation of Albuminuria during Pregnancy to Renal Disease. In his paper already quoted, Dr. Cormack, after referring to the frequent abrupt occurrence of convulsions and death in the course of Bright's disease, writes as follows: "It is quite plain that a pregnant woman, labouring under Bright's disease, even in an early stage, must in this way run a tenfold risk of convulsions. If she have an ovarian tumour, or any other mechanical predisposing cause to renal congestion, besides the gravid uterus, her risk will also be great. In her, too, delivery will hardly bring exemption from the danger of toxæmia from renal non-elimination. Dr. Simpson said, in 1843, that he had been accustomed to teach in his lectures that 'patients attacked with puerperal convulsions had almost always albuminous urine, and hence probably granular renal disease.' This remark of Dr. Simpson's, with deference to so high an authority, I must dissent from. Under proper management, the majority of those affected with puerperal convulsions quickly and perfectly recover, and in future pregnancies are very rarely affected. Undoubtedly, women who have structural disease of the kidneys, are pre-eminently liable to renal congestion, and consequent toxæmia; but then œdema, albuminuria, and convulsions, are not, in the

puerperal woman, pathognomonic of any organic disease of the kidney, though in the *fatal* cases we may expect them to be often present. In three fatal cases of puerperal convulsions, Dr. Simpson found, on dissection, a great amount of renal disorganization. Albumen was looked for in the urine during life, but was not found."

In the *Monthly Journal of Medical Science*, for October, 1852, Dr. Simpson expresses a greatly modified, and we think more correct opinion, on the subject. He says: "Usually, the state of albuminuria which leads to puerperal convulsions is a transitory morbid condition, from which the patient recovers within the course of a few days after delivery; and the affection does not depend on, or result in, any actual change of structure in the kidney."

Professor Litzmann, in the *Deutsche Klinik* for July 17, says: "The anatomical changes which are found in the kidneys of those pregnant females who have died with Bright's disease, denote, for the most part, only the earlier stages. Even Devilliers and Regnault have not felt themselves justified in assuming the existence of albuminous nephritis in all cases. They generally found the kidneys enlarged in volume; the capsule was rarely adherent. In two cases only was there an undoubted granular appearance in the organ. In three cases, inconsiderable enlargement of the organ was accompanied by slight hypertrophy and paleness of the cortical layer. In two other cases, the cortical substance was highly coloured, while the pyramidal portion was in some parts injected, in others pale. In one case, the deep red of the hypertrophied left kidney contrasted strongly with the paleness of the right; and in another, the hyperæmia and swelling were limited to the cortical substance. Cazeaux and Rayer have observed generally the second, sometimes the third, and in one case the fourth form of the albuminous nephritis of the latter author. In all the cases examined by Frerichs, he found fibrinous casts in the urinary passages and in the urine. In one of the cases described by me, the changes in the kidneys had proceeded unusually far; and this might have been inferred from the severity of the symptoms during life, and the presence of tube-casts in the urine."

Dr. Litzmann believes that there is no case in which renal disease, continuing after delivery, has been proved to have commenced during pregnancy; although women have died of chronic disease of the kidneys some time after labour. It is, perhaps, probable that in certain rare cases the renal affection during pregnancy becomes so intense and extensive, that the impeded circulation is not restored after delivery; on the other hand, there is no doubt that women who have once suffered from renal congestion when pregnant, are liable to its return when again in a similar condition. It by no means follows that the disease should amount to uræmia, for this is not always present even in primiparæ.

There is, we think, ample evidence to prove that albuminuria during pregnancy is far from being an indication of *permanent structural renal disease*; but if disease of the kidney already exist, the danger to the patient will be much increased, while delivery will not cause the albumen to disappear from the urine. Dr. Murphy inclines to the belief that "the albuminous state of the urine, taken in connection with the oedematous condition of the surface, would indicate the existence of renal disease in many instances." Temporary congestion is no doubt disease, in the strict sense of the term; but if Dr. Murphy means permanent structural disease, we think that the statistics of Blot and Litzmann, as to the frequency of albuminuria during pregnancy, as well as the common fact of recovery from it, militate against his opinion.

Prognosis. The prognosis in cases of albuminuria during pregnancy, is, according to Dr. Litzmann, more favourable than when the affection occurs under other circumstances. The danger principally arises from poisoning of the blood with uræa; but not unfrequently the renal affection runs its course without any threatening symptoms, so that it might be overlooked, unless the urine were examined chemically and microscopically. The albumen commonly disappears after delivery; often within forty-eight hours. During labour, the secretion of urine commonly increases, as does also the number of fibrinous tube-casts; after delivery, these increase for a time, but soon disappear, even

while albumen is still present. The cedema disappears, as the quantity of urine increases.

Relation of Albuminuria to Puerperal Convulsions. The frequent occurrence of albuminuria in connection with puerperal convulsions, has been fully demonstrated by the observations of Drs. Simpson, Lever, and others. MM. Devilliers and Regnault declare that "*chez toutes les femmes éclamptiques, on trouve de l'albumine dans les urines. Cette règle ne nous a pas encore paru souffrir d'exceptions.*" Reasoning on these and similar statements, Dr. Cormack says: "If it be a fact, then, that albuminous urine and anasarca—the characteristic signs of congestive kidney—be so common in puerperal convulsions, as to be regarded, by the first and most recent authorities, as their constant concomitants, it may, I think, be very safely inferred that the renal congestion is the cause of the convulsions; or, to be more explicative and precise, that the convulsions are direct toxicological effects on the nervous centres, produced by poisonous substances which the unembarrassed kidney could throw off with the urine, but which the congested kidney cannot excrete." And he refers the greater frequency of convulsions in primiparæ to their greater liability to congestion of the kidney, from the mechanical causes already described.

Dr. Litzmann writes as follows: "The principal danger in Bright's disease occurring in pregnant females arises from the uræmia, which is usually indicated by convulsions. Of the causal connection between Bright's disease in pregnancy, and convulsions, no one, who will observe it, can remain in doubt; although I by no means deny that exceptional cases of eclampsia may arise from other causes. Lever has observed a case depending on inflammation of the meninges. The first authors who pointed out the occurrence of albuminuria in puerperal convulsions, as Lever, etc., recognized the analogy of the convulsions to the cerebral disturbances occurring in common cases of Bright's disease; and expressed their conviction that they were dependent on the noxious influence of blood poisoned with urea. But they, as well as Devilliers and Regnault, failed in discovering urea in the blood of convulsive patients.¹ Frerichs, from his observations on patients and experiments on animals, has asserted that the symptoms of uræmic intoxication in Bright's disease do not depend on the existence of urea, as such, in the blood, but on its transformation within the vessels into carbonate of ammonia, under the influence of a peculiar ferment. My observations on the convulsions of pregnant females entirely agree with this theory. In one of my cases, the presence of ammonia in the blood was not ascertained by conclusive evidence; but in three other cases there could be no doubt of its presence, as carefully repeated experiments always gave the same result. On the other hand, when there were no symptoms of uræmic intoxication, though albuminuria existed, the blood appeared free from this poisonous admixture. I have not found urea either in the blood, nor in the serum resulting from scarification of the cedematous parts. In only one case could I detect ammonia in the expired air. In one case just after delivery, the sweat on the forehead had an alkaline reaction."

Although puerperal convulsions are often connected with renal congestion, it by no means follows that they are an inevitable result. Devilliers and Regnault observed eleven cases of convulsions in twenty pregnant females who had albuminuria; Blot found them present in only seven cases out of forty-one. Dr. Litzmann found seven cases with uræmic symptoms, five of whom had convulsions, in thirteen cases described by him.

Other Effects of Toxæmia from Renal Congestion during Pregnancy. Dr. Litzmann observes that certain other phenomena, principally connected with the nervous system, which have been usually considered as premonitory of convulsions, may be themselves the only effects of toxæmia; and that this probably occurs when the quantity of urea in the blood is but small. Headache is generally present when there is cedema of the face; and is then probably most frequently the result of simple congestion. The most marked symptoms of uræ-

¹ In Guy's Hospital Reports, 1849, vol. vi. chap. 12, Dr. Lever appears to have found urea in the blood of an eclamptic female.

mia are disturbances of the senses, especially of vision. The patients complain of *muscæ volitantes*, or see objects coloured yellow or red; more frequently they see dark figures, or only see the half of objects; sometimes there seems to be a dark veil over objects; or the patients may be quite amaurotic. These symptoms are sometimes only momentary; in other cases, when they are more intense, they continue for hours, and days. In the amaurosis, the pupils are little or not at all dilated; but they obey sluggishly, or are unaffected by, the stimulus of light. Amaurosis usually appears before or during labour; but sometimes subsequently. Coma or convulsions are apt to follow it. It is probable that most of the cases of amblyopia and amaurosis, which occur at the end of pregnancy, disappear after labour, and return in subsequent pregnancies, are to be referred to this head.

Noises in the ears, which authors have named among the forerunners of eclampsia, have never been observed by Dr. Litzmann.

Nausea, a sense of choking, and vomiting, are among the most constant symptoms. The vomiting is not always an indication of uræmia, but is sympathetic with renal irritation, or perhaps more frequently with congestion of the brain. Its connection with uræmia must be decided by chemical examination of the vomited matters.

When uræmia is developed for the first time during labour, there is often a dulness of the intellect, a certain wildness or melancholy of the patient, and remarkable restlessness and impatience during the labour-pains: there frequently are rigors, returning with each pain (Hamilton, McClintock, and Hardy); the pulse is more frequently slow than accelerated.

Eclampsia rarely occurs without any premonitory symptoms; and when it does, it probably arises from a sudden impregnation of the blood with a large quantity of urea.

Dr. Costilhes (*Gazette Médicale*, October 9, 1852), points out that long continued albuminuria, by impoverishing the blood, may give rise to hemorrhage from the uterus or other parts of the body.

Treatment. Dr. Cormack writes as follows: "The prophylaxis of renal puerperal convulsions must evidently embrace an avoidance of too long continuance in the supine position; an easy corset, giving free play to the lungs, and not pressing back the womb; moderate exercise; regularity and sufficiency of the alvine evacuations; and a good state of the skin. Mental excitement must also be avoided, as it might, even with a moderately poisoned state of the blood, be the immediate cause of convulsions." In the treatment, he gives the following as the leading indications:—

1. Remove pressure from the renal vessels, by interdicting the supine posture, and by unloading the bowels; and, when safe, by emptying the uterus.
2. Relieve congestion of kidneys by purging, by cupping in the loins, or by general bleeding.
3. Venesection, if apoplexy be threatened.
4. Calmatives to soothe the excited nervous system.

The first two of these measures have more especial reference to the condition of the kidneys; the last two to the cerebral symptoms.

Dr. Litzmann observes, that the renal congestion cannot be relieved before delivery; but that it may be mitigated, and more unfavourable symptoms averted, by timely measures, especially the removal of all causes which may assist in impeding the circulation through the abdominal vessels. It is thus important to obviate the constipation so common in pregnant women; and in one case, Dr. Litzmann has not only seen all the symptoms recede, but the albumen in the urine diminish. If the renal disease have set in suddenly, and is accompanied with much pain and tenderness, local bleeding is indicated. It is doubtful whether benefit would be derived from diuretics or astringents before labour; but on this point he has had no personal experience.

With regard to the blood-poisoning, when symptoms of an impoverished state of blood occur, a strengthening diet, with iron, cinchona, etc., are indicated.

In the unmistakable symptoms of cerebral congestion, which almost always accompany uræmia, local depletion and cold applications, timely applied, usually give quick relief, and the secretion of the dry skin may be rendered

active by bathing with warm vinegar. Frerichs, acting on his theory of the conversion of urea into carbonate of ammonia within the blood, gives acids, especially the benzoic; and Litzmann has given the benzoic and citric acids, he believes sometimes with favourable results.

If convulsions occur, general bleeding is indicated in strong plethoric individuals. But if the renal disease have lasted some time, and hydræmia is present, this treatment is likely to injure; local depletion must then be employed and repeated as may be required. Large doses of acids must be given, cold wet cloths applied to the forehead, and the extremities bathed with warm vinegar. It is often useful to empty the intestinal canal; but Dr. Litzmann cautions his readers against being led to give large doses of drastics and mercurials; and he acknowledges himself not blameless in this respect, with regard to a case related by him. If all these remedies fail, labour must be induced; and after birth, the state of the kidneys must be carefully watched. Mild diuretics are now likely to be useful; but if albumen continue to be present in the urine, the case is to be regarded as one of chronic Bright's disease.

HYGIENE.

62. *Destruction of Puerperal Miasma in Lying-in Hospitals.* By Dr. BUSCH.—The means employed by the author consist in heating the room to a high degree with dry air. This is effected by round iron stoves placed in the centre of the room, and connected with the chimney by metal tubes. The heat can be raised to 50–60° R. (about 155° F.). This must be kept up for two days, during which time all furniture and utensils are to remain in the room.

In March, 1851, puerperal fever invaded the Berlin Lying-in Hospital with remarkable severity; nearly all the patients suffered, and the institution was closed for six weeks, during which time there was the most careful ventilation and purification. These means proved insufficient. Upon the reopening of the hospital, all the new patients became attacked by the disease a few days after delivery. Then the author tried the plan here detailed in every room in the house. The effect was surprising; no fresh attack occurred during the whole summer. The same measures were adopted some time afterwards, and with the same success.—*Med. Times and Gaz.* Feb. 19, 1853, from *N. Ztschr. für Geburtsh.* xxxii. 3.

63. *Experiments on the Diet of Prisoners.*—The No. of the *Monthly Journal of Medical Science*, for May, 1852, contains an account, by Prof. CHRISTISON, of some experiments on the diet of prisoners, which are interesting, both in a practical point of view, and in relation to the physiology of nutrition. The object of the inquiry was to ascertain with every possible accuracy whether the dietary of the regulations of the General Board of Directors of Prisons in Scotland was sufficient and not more than sufficient to maintain the health and condition of the prisoners. The observations were conducted on a larger scale and with greater care than any similar investigation, and the results are, therefore, entitled to confidence.

The following are Dr. Christison's conclusions:—

1. For the average of people whose occupation involves moderate muscular effort and no great exercise, a simple, well-selected sort of food, supplying seventeen ounces of daily real nutriment, of which four ounces are nitrogenous principles, constitutes a sufficient diet for maintaining health, strength, weight, and general condition; but less is not sufficient.

2. The proportion of nitrogenous nutriment in such a diet cannot be very sensibly reduced below four ounces a day without risk of injury.

3. This amount of nutriment, though in general adequate for the average in the supposed circumstances, is not always so.

4. It is probably inadequate for those who have been accustomed to a vigorous

occupation in the open air, and a liberal dietary, even when their employment is changed for one involving no great muscular effort or exercise.

5. It is inadequate for a fair proportion of persons considerably exceeding the average in bulk.

6. It is inadequate for a considerable proportion of growing lads between sixteen and twenty.

7. It is more generally adequate for females than for males.

8. It is rendered occasionally inadequate by other causes not distinctly indicated by the observations in the Scottish prisons, but certainly independent of any increase in habitual muscular exertion.

9. Hence the economical regulation of the diet of bodies of men must always be a matter of great difficulty; and if deviations from the standard dietary be not allowed with a liberal discretion, injury will be apt to ensue. And here it should be added from other observations, that suspicion may be lulled by no very perceptible injury except loss of weight occurring in ordinary seasons; while, nevertheless, manifest injury will arise in periods of epidemic disease.

10. The prison dietary in Scotland has been very successfully adjusted by long experience in most of the prisons, so far as regards the class of prisoners who formed the subject of the preceding observations and experiments, viz., those imprisoned for terms not exceeding two months. But in that dietary treacle water cannot be substituted for milk without a reduction of flesh, the forerunner of probable ill health, unless some compensation be made in other articles of food. It has, in fact, been disallowed by the board since these experiments were made.

11. In adjusting dietaries, and in all practical inquiries into the subject, reliance ought never to be put in practical observation alone; but scientific analysis should be likewise brought into requisition. I could quote numberless errors committed by merely practical men, which could scarcely have escaped notice had they united scientific knowledge to practical skill.

The following table is added for the purpose of showing in one view the nutritive value of the several dietaries referred to above, and their respective influence on the weight of the prisoners subjected to them:—

	Ounces of nutriment.			No. in 100 prisoners whose weight was		Average pounds lost by each.
	Nitrogenous.	Carboniferous.	Total.	Maintained or increased.	Diminished.	
Edinburgh	4.05	12.87	16.92	82.0	18.0	1.5
Glasgow	4.06	12.58	16.64	67.3	32.6	4.0
Aberdeen	3.98	13.03	17.01	} 68.0	32.0	4.2
Stirling	4.27	13.40	17.67			
Ayr	4.17	13.20	17.37	29.0	71.0	5.0
Dundee	2.73	14.06	16.79	50.0	50.0	5.25
Perth	2.68	14.11	16.79	46.0	54.0	3.3
Paisley	Not fully reported.			56.0	43.5	3.2
Carlisle	2.5	11.17	13.67	} 13.04	86.96	6.5
Do. hard labour...	2.93	12.17	15.10			

64. *On the Effect of Prolonged Horizontal Posture in the Production of the Great Mortality in Foundling Hospitals.*—M. HERVIEUX observes, that persons visiting the *crèche* of the Paris Foundling Hospital, admire the exquisite cleanliness, free ventilation, and mild temperature of that vast apartment. Still, of about 4000 infants annually admitted, about 3000, i. e. 75 per cent. die; and to explain this fearful mortality, the impoverishment of the blood of these victims of debauchery and poverty, their overcrowding, and the insufficiency of their nursing, have been referred to. All these have something to do with the result; but a chief cause of its production, hitherto overlooked, is the too prolonged maintenance of the horizontal posture. Each child is taken up, fed, and

changed four times daily, and again at night, when it cries. Suppose this operation is performed six times on an average, as it only occupies about twenty minutes, the infant is lying on its back for twenty-two out of the twenty-four hours, quite unable at this age to change its position. Motion and exercise are essential to the well-being of the infant, and its proper place is its nurse's bosom, the warmth of which is imparted to it.

The children of the *crèche* die, in fact, of cold and hunger. Owing to the continuance of the horizontal posture, the temperature of the body becomes lowered, the limbs chilled, the circulation languid, and the respiration embarrassed. All the principal functions languish, the skin becomes indurated, and visceral congestions take place. Some of the children perish from sclerema, some from the so-called pneumonias, which are only sanguineous stases, and others from various serous effusions or hemorrhages. The definitive cause of all these disordered conditions is *cold*, not cold engendered by the diminished temperature of the surrounding medium, but cold resulting from their prolonged immobility.

We have also to inquire whether feeding infants four, six, or even eight times a day is sufficient. Books tell us that they should only be suckled at regular intervals, every three or four, or sometimes two hours; but any one practically acquainted with the rearing of young infants, must see the fallacy of this. In fact, they suck some thirty or forty times a day, absorbing, according to the calculations of Guillot and Lamperrière, from three to four pints of milk. This suits them admirably; for in the first two or three years they have to acquire one-half the height and weight they will gain during the rest of their lives; and the limiting them to the periods and quantities suitable for older subjects is unphysiological and mischievous. It has been said that this so-called excess of food gives rise to the gastro-enteric affections, so frequently met with at this period of life; but, in fact, such diseases are not met with in private practice, either in the infants of the rich or of the poor, who are often so inordinately suckled, while the body of every child brought from the hospital exhibits more or less intense signs of acute or chronic gastro-enteritis. The practice of bringing up the children by hand has been assigned as a cause of the great mortality; but nothing similar to it is found among the children so brought up in the worst parts of Paris, where they, however, get abundance of milk and good nursing. At present, the eighty-four infants at the *crèche* have only nine nurses and two night nurses to attend to them; while M. Hervieux considers that one woman cannot pay suitable attention to more than two infants.—*B. and F. Medico-Chirurgical Review*, Jan. 1853, from *L'Union Médicale*, 1852, Nos. 139, 140.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

65. *Poisonous Plants of the Isthmus of Panama.* (From the Botany of the Voyage of H. M. S. Herald, under the command of Capt. Kellet, R. N., during the years 1845–51. By BERTHOLD SEEMAN, naturalist of the expedition.)—"The most dreaded of the poisonous plants are the amancay (*thevetia nervifolia*), cojon del gato (*thevetia nitida*, De Cand.), manzanillo de playa (*hippomane mancinella*, Linn.), florís pondio (*datura sanguinea*), and bala (*glincidia maculata*, Kunth). It is said of the manchineel, that persons have died from sleeping beneath its shade, and that its milky juice raises blisters on the skin which are difficult to heal. The first of these statements must be regarded as fabulous, and the second be received with a degree of modification. Some people will bear the juice upon the surface of the body without being in the least affected by it, while others do experience the utmost pain, the difference seeming to depend entirely upon a man's constitution. Great caution, however, is required in protecting the eyes, for if the least drop enters them, loss of sight and the most acute smarting for several days are the consequence. The smoke arising from the wood produces a similar effect. While surveying on the coast of Darien, a boat's crew of H. M. S. Herald was blinded for some days from

having kindled a fire with the branches of this tree. Whenever the natives are affected by the poison, they at once wash the injured part in salt water. This remedy is most efficacious, and as the manchineel is always confined to the edge of the ocean, of easy application. It has been stated that the Indians of the isthmus dip their arrows in the juice of the manchineel. There are, however, various reasons for doubting this assertion: First, because the poison is, like that of all euphorbiaceæ, extremely volatile, and however virulent when first procured, soon loses its power. Secondly, because its effect, even when fresh, is by no means so strong as to cause the death of human beings, not even producing, as has been stated, the slightest injury on some constitutions. The statement may, therefore, be considered as an inaccuracy, and it may rather be supposed that the Indians, like those of Guiana, obtain their poison from the two species of *strychnos* common throughout Panama and Darien.

"The fruit of the amancay is also considered very poisonous; but its dangerous qualities have probably been overrated. There is a gentleman in Panama, who, when a boy, ate four of these fruits without experiencing any other effect than mere griping.

"The leaves of the bala, or, as it is also called, *madera negra*, are used to poison rats. The *datura sanguinea* appears to have always played, and still continues to play, a prominent part in the superstitions of tropical America. The Indians of Darien, as well as those of Choco, prepare from its seed a decoction, which is given to their children to produce a state of excitement, in which they are supposed to possess the power of discovering gold. In any place where the unhappy patients happen to fall down digging is commenced, and as the soil nearly everywhere abounds with gold dust, an amount of more or less value is obtained. In order to counteract the bad effects of this poison, some *sour chica de maiz*, a beer made of Indian corn, is administered." T. R. B.

66. *Death of the Duke of Bourbon*.—(For the particulars of this case, and the various opinions concerning it, see *Elements of Medical Jurisprudence*, 10th edit. vol. ii. p. 192.) "The circumstances attending the death of the Duke of Bourbon have not been generally known, owing to the interest Louis Philippe had in preventing, as far as was in his power, their being publicly exposed. There were several Englishmen in the house at the time, and among them a friend of mine, of the most unimpeachable veracity, from whom I received the following statement:—

"The Duke was on the eve of following Charles X. to England, from a feeling of dutiful submission to the head of his family, but by no means concurring with him in his political conduct. On the morning of his death he had quarrelled with his mistress, Madame Feuchieres, and received a black eye, with which he appeared at dinner. In the mean time, it was known that he had sent for his confidential lawyer, who resided about forty miles off, to alter his will, and the lawyer was expected the next day. He had two valets de chambre, one of them greatly in his confidence; the other in the interest of Madame F. He said to his favourite, 'You must sleep to-night in my ante-chamber.' 'No,' said the valet, 'it is Monsieur ——'s turn, and it would create an uproar.' 'Then,' said the Duke, 'they will murder me in the night.' In the morning, he was found dead, hanging to the rod of a curtain, which could not have been done by himself, as he had scarcely the use of his arms. The king had intrigued with Madame F., by means of which he had succeeded in obtaining half the property of the Duke for his family, and to avoid the publication of his correspondence with her he found means to procure her acquittal."—*Notes by Sir Robert Heron, Baronet*. Third edition. London, 1852. (This work is very much of the character of the writings of Wrazall.) T. R. B.

67. *Legitimacy. Period of Gestation*.—Vice-Chancellor's Court (England), Feb. 18, 1852. *Dyson v. Dyson*. Bill filed by infant claiming to be the child of G. W. Dyson, one of the defendants, and as such child to be entitled to certain real and personal estate, subject to his father's life estate therein. It was alleged by all the defendants that, though the plaintiff was born in wedlock, he was not the child of G. W. Dyson. It was proved that G. W. Dyson left his

wife in Madeira, in February, 1849; that she returned to England in August following; and that the plaintiff was born on the 8th of January, 1850.

Hare, for the plaintiff, read evidence of several medical witnesses, deposing to the possibility of the period of gestation being protracted to a period of 330 or even 336 days, and cited a case, where a foreign court had decreed a child born 333 days after access to be legitimate.

W. M. James and Nugent, for defendants, not called on.

The *Vice-Chancellor* referred to the *Gardner* Peerage case, where a period of non-access considerably shorter than 336 days had been held by the House of Lords to be decisive against the legitimacy of the child, and said he could not make a decree upon the present evidence in favour of the plaintiff. But plaintiff was entitled to an issue. Plaintiff's counsel refusing this, the bill was dismissed.—*Legal Exam. and Journ. of Med. Jurisprudence*, No. 7. T. R. B.

68. *Chloride of Arsenic*.—Notice of, by Dr. PENNY and WILLIAM WALLACE.—In evidence of the extreme facility with which arsenious acid yields the chloride when heated with hydrochloric acid, we may mention one or two experiments.

Two tenths of a grain of arsenious acid were heated on a distilling apparatus with 550 grains of hydrochloric acid, specific gravity 1.100; when one-twentieth of the liquid had distilled over, the distillate was tested with sulphuretted hydrogen; a decided precipitate of sulphide of arsenic separated.

In another experiment, one grain of arsenious acid was distilled with 550 grains of the same hydrochloric acid. A piece of copper ribbon placed in the neck of the flask became coated with a crust of metallic arsenic as soon as the liquid began to boil. One-tenth of the liquid was allowed to distil; and on testing one-third of the distillate with sulphuretted hydrogen, the presence of arsenic was clearly indicated. Another third of the distillate was subjected to Reinsch's process, which also gave unequivocal proof of the presence of arsenic. The separation of metallic arsenic in Reinsch's process appears to depend almost entirely on the ready production of chloride of arsenic, which is instantly decomposed on contact with copper.

As the formation and escape of chloride of arsenic appear, therefore, to occur with certainty when arsenious and hydrochloric acids are heated together, it becomes interesting to inquire whether similar results would obtain in presence of organic matters.

Half a grain of arsenious acid was mixed with an ounce of porridge, and an ounce of hydrochloric acid being added, the mixture was distilled. The moment the mixture began to boil, a slip of copper ribbon previously placed in the neck of the flask was coated with metallic arsenic. Nearly an eighth part of the mixture was distilled over, one-half of which gave with sulphuretted hydrogen, the well-known effects of a solution of arsenic.

Again, two tenths of a grain of arsenious acid were mixed with an ounce of porridge, and three-fourths of an ounce of hydrochloric acid, and the mixture distilled as before. Three drachms of the distillate, when tested by Marsh's process, afforded brilliant stains of metallic arsenic. The distillate gave also a yellow precipitate with sulphuretted hydrogen.

Similar experiments were performed with cow's liver and common broth. The results were equally satisfactory.

The foregoing experiments plainly indicate the availability of the chloride of arsenic in medico-legal investigations for the separation of the metal from animal and vegetable matters, and we are induced to think that its production by the direct agency of hydrochloric acid will be found in practice to be more convenient than by distillation with sulphuric acid and common salt, as recommended by Dr. Fyfe. It appears to be peculiarly suitable for the preparation of the liquid to be subjected to Marsh's process. The chief precaution to be observed is to employ the hydrochloric acid in sufficient quantity and of full strength.

Several experiments were likewise made with sulphide of arsenic. It is slowly decomposed by concentrated hydrochloric acid, with the formation of chloride of arsenic; but the distillate is very apt to be contaminated with sul-

phide of arsenic, reproduced by the secondary action of the sulphuretted hydrogen disengaged at the same time. As common orpiment, however, usually contains arsenious acid, the present process seems also applicable to those cases in which this substance may occur.—*London, Edinburgh, and Dublin Philosophical Magazine*, November, 1852. T. R. B.

69. *A Case of Doubtful Paternity.* By W. L. SUTTON, M. D., of Georgetown, Kentucky.—A child was brought to Georgetown, in August, 1852, by its reputed father, accompanied by his physician, a gentleman of 45 or 50 years of age, for examination by the physicians of the town. The attending physician believed the colour of the child was occasioned by the foramen ovale remaining open. In proof of this, he alleged that when the child cried he became much darker, decidedly blue, and thought that the imperfect aeration of the blood consequent upon the patent condition of the foramen was sufficient to account for the permanent dark colour of the skin. In this opinion he was in general supported by another medical man who had seen the child when two months old.

Other physicians discredited the opinion that the colour depended upon cyanosis; they agreed that there were appearances about the child of a very suspicious tendency, but declined any opinion as to admixture of blood, without a better acquaintance with the relatives of the husband and wife.

The child is a boy, four months old, with black, straight hair; the fine hair on the forehead black; the forehead rounded; the nose broad, particularly expanded at the alæ; skin dark, yet not darker than purely white children are sometimes seen. Near the extremity of the coccyx, and rather to one side, was a spot, oval in shape, about three-fourths of an inch long, decidedly dark. There is a popular notion that when a child is tainted with African blood, the scrotum and a streak down the back are always dark. Nothing of that kind existed.

The moral testimony in the case was that, up to the birth of the child, the mother had been entirely above suspicion. In fact, she had been considered a very modest woman. She was said to have fair complexion, light hair, and blue eyes. The husband, who accompanied the child, had nothing remarkable as to complexion, hair of the ordinary brownish colour. His mother was reported to be very dark, with black hair.

Subsequently, it was reported that the woman acknowledged that she had had occasional connection with two negro men in the neighbourhood.

Such are the facts as given by Dr. Sutton. We add some of his comments, which are worthy of note, from his residence among a slave population.

"In this town there is a family—the father half white, the mother three-fourths—whose children vary very much in colour. Some are pretty good samples of the negro race, and others, at five or six years old, are not only as white as most white children, but having straight and light-coloured hair. In stating this, I have gone upon the presumption that the facts are really as they appear. Some of the children *may* be by fathers purely white, and others by those wholly black. I can only say that no suspicion attaches."

To a statement made by the writer, that, "at birth, the new-born black infant cannot be always distinguished from the white—its hair has not yet its peculiar make, and we can only notice the tendency to dark on some parts of the body; in a few days, however, the change commences on the countenance, and gradually extends over the body"—Dr. Sutton objects as follows: "This is rather too positive. In many cases, a child of purely black parents is so white at birth as to exhibit no *tendency to dark* on any part of the body, and, like other changes, this sometimes takes place much more slowly than in others."

"The spots spoken of above are certainly rare, nor do I know to how much consideration they are entitled. There was one on the child which gives rise to these remarks. On the other hand, without being able at this time to refer to any particular case, I am certainly under the impression that I have seen persons, entirely free from suspicion of admixture, who had a dark spot on some part of the body. I sometime since owned a negress, who clearly had no

white blood in her, yet she had a large spot on the forehead and temples greatly darker than her skin in other parts.

The hair, although a very important feature, is not conclusive in determining our judgment. It does not necessarily begin to assume its distinctive character in a few days, as we might infer from the expression of Beck. In half-breeds, generally, it is only curly, and not knappy, as in the negro; frequently, it is more curly than occurs occasionally in persons purely white; whilst again it is as knappy as in the negro.—*Western Journ. Med. and Surg.* Oct. 1852. T. R. B.

70. *Poisoning by Mushrooms.*—Dr. Goudot has published, in the *Union Médicale*, the cases of seven persons poisoned by them, and of whom three died. The mushrooms were fried in butter and eaten at supper, by a family of parents, children, and a domestic. The quantity consumed by each was very much alike. The night passed quietly; but in the morning the grandfather was seized with vomiting and purging, from which, however, he recovered rapidly. The father, aged 38 years, was similarly affected from morning till evening; but also recovered. On the contrary, the mother and two of the daughters were not seized until twenty hours after eating the mushrooms, and all of them died after sixteen hours of suffering. Lastly, a female servant, aged 13 years, was not attacked until at the expiration of twenty-nine hours after the supper, and then, after vomiting, purging, and cramps, recovered rapidly.

The mother was the only person examined after death. There was a decomposition of the tissues, and the abdominal viscera were softened, and the odour from them was extremely fetid.

What is, however, most remarkable, is that a seventh person, aged 16 years, ate, the next day, mushrooms, at least half in quantity of those that had served the family the day previous. These, however, had lain in water for an hour, and were then drained and pressed. In this condition they were fried with butter and eaten. Diarrhoea followed for several hours, without any other dangerous effect.

Conclusion.—The above cases seem to verify the opinion of Dr. Pouchet, of Rouen, that, if mushrooms be for some time boiled in water, their poisonous principle will be destroyed or extracted.—*Journal de Médecine et Chirurgie*, November, 1852. T. R. B.

71. *Tincture of Nut-Galls an Antidote to Poisonous Vegetable Alkaloids.*—Caventou, in a letter to Bouchardat, insists greatly on the value of this substance. The tannic acid contained in it causes the precipitation of the alkaloid.

He at the same time discourages the use of the solution of the iodide of potash, which has been recommended by some.—*Gazette des Hôpitaux*, December, 23, 1852. T. R. B.

72. *Death from the Vapour of Muriatic Acid.*—The *Brussels Herald* says: "M. Pontin, a Swede, whose literary patent was well known, and who was deputy master of ceremonies at the Swedish court, has just died in a most extraordinary manner. He was returning to Sweden, after a voyage he had taken on the Continent. On board of the vessel in which he was a passenger, some carboys of muriatic acid were placed on the deck just above his cabin; during a very stormy night, two of these bottles broke one against the other, the acid running through the cracks of the deck into his cabin; the gas which was contained in it immediately produced convulsions, and he died after one day's dreadful agony."—*Athenæum*, Oct. 30, 1852. T. R. B.

73. *Religious Insanity.*—A student in theology, at the university of Bonn, in a fit of this, went to a neighbouring wood with hammer and nails, and finding a tree in the form of a cross crucified himself upon it. He was discovered by some peasants, who cut down the tree and carried him with it to Bonn, where he was taken into the hospital, and is now declared out of danger. Several such cases are recorded in *Winslow's Anatomy of Suicide*.—*Med. Times and Gaz.* Aug. 28, 1852. T. R. B.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Case of a Female, the mother of seven children, who had never menstruated.
By S. T. GREGORY, M. D. With Remarks by C. D. MEIGS, M. D., Professor of Midwifery in Jefferson Medical College, Philadelphia.

TO ISAAC HAYS, M. D.,

Editor of the Am. Journ. Med. Sci., March 20, 1853:

SIR: I lately received a letter from Dr. Gregory, of Warrenton, Missouri, which appears to me so interesting as to merit a place in your Journal. It does not seem necessary to publish the whole of the communication, with which Dr. Gregory has favoured me. I therefore beg to offer for your press the following extracts:—

Warrenton, Missouri, Jan. 18, 1853.

PROF. CHARLES D. MEIGS, M. D.,

DEAR SIR: *Quere.*—"Is a woman who never menstruated capable of conceiving and bearing children?" This is a question that has oftentimes presented itself to my mind; and, from all the information I possessed on the physiology of menstruation; I unhesitatingly decided in the negative. And, I will farther state that, for fear my opinions upon the subject were incorrect, or too hastily arrived at, I spared no pains nor labour to consult the highest and most reliable authorities (both French, English, and American), but could find but little, however, in favour of the proposition; and nothing in the main, satisfactory or conclusive. It was my good fortune (if I may be allowed the expression) in the summer of 1846, to meet with a case just in point. I was consulted by Mr. —, on account of his wife, who he informed me, had been complaining for some weeks of the following symptoms: costiveness, headache, sleeplessness, eructations, &c., &c. Thinking that the symptoms as described, were the results of indigestion, I prescribed a few pills of extract. colocynth. comp. with extract. hyos., and an antacid and tonic, to be taken *pro re nata*. After recommending the above treatment, I accidentally asked him the further question, "if his wife was regular in her monthly courses?" and to this he gave me the following reply: "In that respect, Doctor, my wife is very curious. From all I can learn, she is not as other women. She has never been in that state since we were married, and she assures me that she never was so before marrying." He stated that she was the mother of six living children (all boys), and that she was then far advanced in pregnancy. As I had attended her in several previous labours, he also requested me to attend her again. To this I readily consented, and in due time, I was called upon. Thinking that he had probably been deceived in relation to the condition of his wife, I thought this would be a most auspicious opportunity to learn the facts from the lady herself. She was safely delivered of a well-formed male child, without an untoward symptom. So soon as delicacy and a sense of prudence would admit, I related to her the conversation I had had with her husband some months previous, and she assured me that all he had said on that matter was true to the word.

She stated that she had never in her life been unwell, like other women.

She had never experienced the usual symptoms preceding or attending menstruation. She had never been troubled with any vicarious discharge, except twice, when she threw up some dark grumous blood. Her general health had usually been good—so much so, that she had been able, most of the time, to attend to domestic affairs without much assistance. Now, this was certainly a novel case to me, and one that I felt much interest in. It also satisfied me that, while it is almost as natural for a woman to menstruate as it is for her to breathe, yet now and then cases do appear, where women who have never menstruated may conceive and bear children. These cases may certainly be considered anomalous.

In conclusion, let me ask you again, to pardon me for thus intruding upon your time and patience with this uninteresting letter; and, with considerations of the greatest regard, believe me yours, very respectfully,

S. T. GREGORY.

After reading the above extract from Dr. Gregory's letter, it appears to me necessary only to make the reflection that as fecundation without a previous act of ovulation, is not to be deemed possible, this lady was the subject of the germ-producing act as fully as any other woman can be—and that, as the menstrual discharge is nothing more than a simple physiological effusion of blood, determined by the processes of ovulation, it is for many women indifferent whether the sanguineous discharge does or not coincide with the oviposit.

Probably, menstruation consists, more essentially in the periodical oviposition, than in the bleeding from the womb that attests the progress of that important office. In Dr. Gregory's patient, no visible signs of menstrual hyperæmia have ever presented themselves, save only those we observe as to the conceptions and gestations, which are the most characteristic of them all.

In this case, we have no greater reason for surprise at the absence of the catamenia, than we have in the instances, very numerous, of women who never see after the first conception, until, after numerous lyings-in, they cease to bear children, whereupon they prove to be exactly regular, as it is called. But, such women were always exactly regular in the oviposition—though they never exhibited any *show* of it until they ceased to conceive.

Upon the whole, Dr. Gregory's case is well worthy of perusal. But let the reader beware not to found upon these interesting facts a decision as to the question, whether a non-menstruating young woman is marriageable or not. I have met with too many instances of total absence of the uterus in married women, not to feel how necessary it is, in all such doubtful questions, to have the facts of the case clearly understood, before a professional sanction is given to a union that cannot but produce unhappiness, where abnormal development by default, renders the marriage hopelessly sterile, and the rite impossible.

I am sir, with great respect, &c., &c.,

C. D. MEIGS.

Ventral Pregnancy—Sudden Death. By SAMUEL A. PETERS, M. D., of Boone County, Missouri. (Communicated in a letter to Professor H. L. Hodge, M. D.)

DEAR SIR: On the 17th of December last, I was summoned to see a coloured woman belonging to a Mr. H——, in this county, who was taken very suddenly ill; not being at home at the time, I did not see this patient until an hour and a half after she had been taken ill.

History.—This woman, æt. thirty-five, enjoyed formerly tolerably good health; has had seven children, and was supposed to be pregnant at this time; this, however, had not been satisfactorily ascertained to be so. She, however,

stated that three months anterior to her present illness her menses had not appeared, but since that time, they twice recurred at irregular intervals. The owner of this negro woman informed me, upon my arrival, that she had been washing the floor of a room, not having complained of being unwell, when instantly she fell insensible upon the floor. She was laid upon a bed, and they supposed her complaint to be nothing more than a "fainting spell," which they said she had had several times before. Her pulse 96, was barely perceptible; tongue natural; lips pallid; extremities extremely cold; she referred "her misery" to the hypogastrium. I pressed my fingers upon that part of the abdomen, but it neither lessened nor increased "her misery." I examined per vaginam, but could discover nothing there that would throw any light upon the nature of the case. The lips of the os uteri were thick and soft, and I could very easily introduce one of my fingers in.

From not being able to satisfy myself positively, from the imperfect history I could obtain, as to the true nature of the case, I was necessitated to prescribe for symptoms. The patient died two hours after taking ill.

Post-mortem Examination.—The cavity of the abdomen was filled with a large quantity of fluid blood; I removed fifteen pints of it before I could advance further with the examination. An embryo, with all its membranes, was partly adhering to the upper anterior part of the bladder; the decidua, the chorion, placenta, and amnion, were all distinctly seen. The embryo is three inches in length; all the external members of the embryo are perfectly formed; it had one coil of the funis around its neck. I removed the uterus and its appendages from the body. The uterus was twice its natural size, and three-fourths of an inch in thickness; the inner surface presented no appearance of a decidua; the glandulæ Nabothi were slightly enlarged.

The Fallopian tubes presented nothing unnatural, external or internal; the orifices presented the appearances at the angles of the uterus which they usually do in the unimpregnated state. The right ovary was much larger than the left, and, when opened, I observed that it was filled with a brown-coloured fluid.

Remarks.—Judging from the size of the embryo, and also from what the patient said respecting her menses, I should suppose that she had been pregnant at least three months.

The cause of this sudden death is obvious; the adhesion of the membranes of the ovum to the bladder becoming ruptured or broken, and the blood-vessels of the bladder being consequently opened, and not having the power to contract, permitted the blood to flow from them until death ensued.

I was very sorry, at the time, that it was impossible to have a competent witness present at this *post-mortem* examination, as the fact presented itself that there was no deciduous membrane, nor any other matter lining the cavity of the uterus. I am well aware that the major part of writers on embryology tell us that the membrana decidua is formed in the uterus before the ovum arrives there, or is commencing to be formed at the time the human ovum is impregnated in the Graafian vesicle, but this membrane I was not able, certainly, to discover in this case of ventral pregnancy.

BOONE COUNTY, Mo., February 25, 1847.

Case of Protracted Foetation. By H. Y. HORTZE, M. D. (Communicated in a letter to Professor C. D. Meigs.)

DEAR SIR: I have been induced to give you an epitome of a very singular and interesting case of protracted foetation which occurred in the county of

my residence (Anson County, N. C.), sometime since; offering as my apology for so doing, the singularity of the case, the perplexity it gave to the minds of the medical gentlemen of the county, as well as to those to whom the case was mentioned, and my own, and being very anxious to hear your opinion in regard to it. I have never heard of, or seen mentioned by any authors I have consulted, a similar case.

The facts are these: Some time, I think, in March, 1843, Rhoda, an intelligent servant, the mother of several children, belonging to Mr. Thomas Robinson (a gentleman of unquestionable veracity and respectability), became pregnant, and went through the different stages without anything very remarkable. The time arrived when she thought she ought to be delivered, and passed so long that it produced some uneasiness in the mind of her master, and he called in his family physician, Dr. Wm. P. Jennings (a well-read practitioner); but, there not being any labour-pains, or any external signs indicative of approaching labour, he supposed her to be premature, and left her.

She continued in this condition for several months longer; Dr. Jennings was again called, and pronounced it a case of hydatids. In the course of a short time her "*monthly periods*" returned with considerable regularity, as to time and quantity, and she resumed her ordinary work, and performed it without much interruption, except occasionally a slight indisposition with what she and Mr. R. thought to be colic pains (though abdominal enlargement still continuing), until about the first of March, 1849, when she was severely attacked with abdominal pains and symptoms of peritonitis and diarrhœa. The family physician was again called, and whilst there, she passed by the bowels two foetal bones—one of the vertebræ, and one of the metacarpal bones. My preceptor (Dr. Walter G. Jones), was then called in consultation, who supposed it to be a case of extra-uterine pregnancy, in which view the attending physician coincided. The peritoneal symptoms were then the most prominent, and the only thing that seemed to indicate interference, which after several days yielded very readily to the usual treatment. The woman got up again and attended her usual work, but was not altogether in as good health as before the attack, but no medical aid was requested until about the middle of March, 1851. My preceptor was again called to see her, and found her labouring under acute peritonitis, and had been for several days previous to his visit, with a general constitutional disturbance and great prostration. He informed her master that palliation was all he might expect; she continued to decline until the 17th of May, 1851, when she died. On the next day a *post-mortem* examination was held by Drs. Jones, Jennings, and Glass, in the presence of Mr. Robinson and several other gentlemen, and myself. I saw taken from *within the uterus* a perfectly formed foetus, with the exception of the bones mentioned above, which were missing—and, in almost a perfect state of preservation, weighing three and a half pounds, which my preceptor has now in his office. There was found a fistulous opening into the rectum.

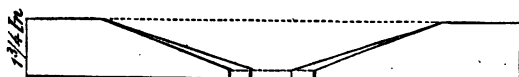
She became pregnant the first of March, 1843, and retained within her uterus a perfectly formed fetus until the 17th of May, 1851, being about eight years, two months, and sixteen days.

Chair for the Cure of Prolapsus Ani and Hemorrhoids. By M. S. BAER, M.D., of Baltimore. (Communicated in a letter to the Editor.) (With a woodcut.)

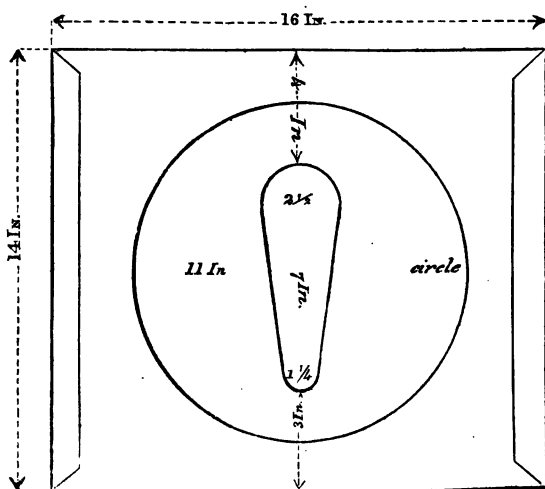
DEAR SIR: Thirteen years ago, I had a child that suffered greatly from prolapsus ani, notwithstanding all the usual remedies used in such cases had

been tried. On one occasion, wanting to return the prolapsed bowels, I was impressed with the idea that, if the muscles and soft parts about the rectum could be supported, it would prevent a recurrence of the prolapsus. I had a chair prepared according to the diagram now sent, and from that time had no return of the prolapsus; since that time I have had no difficulty in similar cases; the board cured *all* such. I have given the plan to some of my medical brethren of this city, and they report equal success. I have used it in hemorrhoids and other affections of the rectum; and found it of great comfort in severe dysentery. I have not written this out in regular form for publication, but send it to you, to use your own discretion in the matter.

If you think proper to give it form and publish it, you have my entire approbation, feeling satisfied that the result of a trial, the same report will be given of its success.



End section, showing the cut through the centre.



Ground-plan of a Seat for the cure of Piles. Scale $\frac{1}{4}$ to the inch.

BALTIMORE, Dec. 8, 1852.

Wills Hospital—Report for the Quarter ending December 31, 1852.—
Service of Dr. HAYS.

No. of Patients in the House, October 1st—36.

“ “ admitted during the quarter—27 males, 21 females—48.

“ “ discharged “ “ “ 27 “ 22 “ 49.

RESULTS OF TREATMENT, 30 cured; 14 relieved; 2 incurable; and 3 no change.

The following list embraces the ophthalmic cases that have been under treatment:—

No. L.—APRIL, 1853.

36

Acute conjunctivitis,	4	Choroiditis,	1
Chronic “	19	Amaurosis,	2
Corneitis,	5	Purulent ophthalmia,	4
Ulcers of cornea,	5	Scrofulous “	7
Opacities of “	3	Rheumatic “	4
Iritis,	10	Wound of the eye,	3
Closure of pupil,	3	Tumor of the lids,	1
Cataract “	11		—
Total,			82

New out-door patients—209.

A patient who was admitted on the 9th of October was found to be affected with *Tænia solium*. At the request of Dr. Hays it was determined to try the efficacy of *pumpkin seeds*.

The patient had, for years, been a martyr to the troublesome parasite, notwithstanding various *anthelmintics* which had been administered at different times, among which was the *oil of turpentine*; and this she had taken often, occasionally, however, with temporary benefit.

The experiment was first made with the *dried pumpkin seeds*, and was *unsuccessful*.

A week subsequently, on the evening of the 23d of October, 3ii of the fresh seeds of the common field pumpkin, previously having been rubbed up with sugar and water, were administered at intervals of an hour in four doses. In each case the patient had been *prepared*, by taking a light breakfast and dinner, and fasting in the evening. The next morning at ten o'clock, the patient's bowels not having been moved, 3i of the seeds, prepared as mentioned before, was given; and in less than half an hour she passed a *tape-worm*, measuring about three yards.

A month after this she left the hospital, without any evidence of a return of the affection. She was heard from the 10th of the present month, January, and still remains *entirely well*.

THEOPHILUS PARVIN, M. D.,

Resident Physician of Wills Hospital.

Spina Bifida. By GEO. H. PATTERSON, M. D., Resident Physician of the Northern Dispensary.—By invitation of a medical friend, I recently had an opportunity of witnessing the *post-mortem* appearances of this somewhat rare and interesting disease, and, with his permission, have prepared the following account of the case, believing that it may possess some interest to your readers.

The patient was a little boy, who, at the time of his death, was two years of age; he was the first and only child of apparently healthful parents, and, with the exception of this tumour, was free from any other *lapsus naturæ*. At the time of birth it was about the size of a walnut, but had grown so as to be about four and a half inches in diameter, and of the appearance of a somewhat flattened sphere. The situation was at the junction of the last lumbar vertebra with the sacrum, and when examined by holding a light to one side of the tumour, it was found to be quite translucent. This and the fluctuation seemed to indicate that the walls of the part were of no great thickness. The chief inconvenience that the patient had experienced, arose from an herpetic eruption, which covered the superior portion of the tumour, supposing the child in an upright position; locomotion had been perfect, and the excretions were not passed incontinently. The head of the child was not preternaturally large, although it was remarked that the anterior fontanelle had not closed. The little patient was active, and of a lively disposition, and

had enjoyed an unusual degree of exemption from sickness until the day of his death. He was seized with convulsions at 1 o'clock, P. M., in which state he continued until the fatal termination, which occurred about midnight.

Upon opening the tumour, by means of a stylet, from f3vj to f3vii of fluid was discharged, having the appearance of the purest spring-water, being quite free from colour, odour, or unctuous feel. Upon elevating the head and chest, the quantity of fluid was not increased more than about f3ii, or f3iij. The walls being now exposed by means of an incision, that portion covered with herpes was found to be about one-fourth of an inch in thickness, while the lower portion was at least half an inch; the space between the integument and sack being occupied by adipose tissue. The abnormal opening at the junction of the lumbar vertebra with the sacrum, would admit the middle finger of an adult; through this passed that portion of the spinal marrow which should have continued down the sacral canal, the latter being apparently obliterated; the cord then turned upwards, and was attached to the wall of the sack, about an inch from the junction of the upper part of the tumour, with the back of the subject, and to the left of the median line. The nervous tissue was not softened, but was perhaps not as fully developed as natural. The nerves given off from the spinal marrow (or cauda equina), as it emerged from the spinal canal, continued downwards and forwards through the posterior sacral foramina. The lining membrane of the sack had the usual appearance of serous tissue.

How far this disease was complicated with effusion upon the brain, I am not prepared to say, the examination not having extended thus far. ("It cannot be denied that a primary collection of water in the membrane enveloping the spinal marrow may exist without water in the head. Although the seat of the water be not always the same, it is, however, probable that it most commonly collects between the vascular and arachnoid coats."—*Chelius*.) No dulness of the cerebral faculties had existed till the convulsions; yet, as stated above, the anterior fontanelle was believed to be not closed. The tumour and spinal canal was distended with fluid, and this was sufficient to cause convulsions. The question therefore arises, would not the prompt introduction of the stylet, in such an emergency, be indicated? Observing the same caution as would be necessary in tapping the brain, and as chronic hydrocephalus is usually associated with the disease under consideration, such a course would indeed be tapping the brain. The constitution of the child having been previously good, I am disposed to believe that this operation at such a crisis would be quite justifiable.

It is very well known that the sudden evacuation of the fluid in cases of spina bifida, has produced death; but the case of Mr. Dumville referred to in the *American Journal Med. Sci.* (for Jan. 1847, p. 195), sufficiently proves that such a result is not inevitable. The operation was followed by congestion, twitchings, &c., threatening a convulsion; the case, however, recovered perfectly. Now, as an excessive accumulation of fluid upon the cerebro-spinal axis produces convulsions which is almost necessarily fatal, we cannot but believe that the prospect of an unfavourable termination would be lessened by the operation.

I do not know that there is any uniformity as to the portion of the sack to which the spinal cord is attached in these cases; but, as puncturing has been relied upon by many in the treatment of the disease, it is not only desirable but important to avoid wounding the medulla. The safest part for such an operation in the case I have given, would have been at the most dependent part of the tumour, while the patient was in a standing position.

Tracheotomy—Foreign Substance in the Trachea. By B. F. TRABUE, M.D., of Glasgow, Ky.—On Tuesday evening, April 13, 1852, W. M. B., a boy about five years of age, while romping in the yard with a dog, having some grains of corn in his mouth, let one slip into the trachea. Urgent dyspnoea ensued, with spasmodic coughing, which continued, frequently threatening suffocation, until I saw the child, five days after the accident.

I found the parents in deep distress, though little "Willie," at the moment, was breathing quite naturally and looking well. Upon applying my ear to the chest, I found that very little if any air entered the right lung. After satisfying myself fully of the presence of the corn, I determined to operate, though the mother very reluctantly consented for me to do so, and the boy proved quite refractory. By force, I laid the little patient upon the table, and obliged him to inhale chloroform until he was entirely under its influence; then proceeded (assisted by Mr. J. McNally, and Dr. Thos. Hord) to make an incision about an inch and a half in length through the skin and subcutaneous cellular tissue.

With the handle of my knife and finger-nail I pushed aside the sternohyoid and thyroid muscles, and, by careful dissection, exposed about an inch of the trachea immediately above the sternum. I then paused a short time, that the blood might cease to ooze out, and that the influence of the chloroform might pass off. Both objects having been accomplished, in a great degree, I introduced a long slender blade into the trachea, which immediately brought on a violent fit of coughing, by which the trachea was retracted and the blade thrown out when I had only divided a single ring (which might have been avoided, had I taken the precaution to steady the trachea with a tenaculum). However, amidst the struggles, cries, and coughs of my little patient, I again introduced the knife and divided three more rings, which was followed by more violent coughing than any that had preceded, the air passing mostly through the artificial opening. I turned the patient's face downwards, elevated the lower extremities, at the same time striking his back opposite the bifurcation of the trachea, hoping by these means to extrude the corn—but without success. The mother soon after came in, took possession of the patient, and would not consent for any further efforts to be used.

On Monday, twenty-four hours after the operation, found patient quiet (the wound still open), with an accelerated pulse; ordered a dose of oil and left, still not being able to get the mother's consent to use other means. The child breathed quietly through the opening with but little disposition to cough until Wednesday night, three days after the operation, when the wound in the trachea closed.

Thursday night, four days after the operation, and one after the closure of the wound in the trachea, a violent fit of coughing came on, which lasted about an hour, threatening every moment death from spasm of the glottis; after which he slept quietly for four hours, and arose as usual.

From that time until the 10th of May (twenty days after the operation), spells of coughing occurred at intervals of from three to five hours.

At 7 o'clock P. M., 10th of May, the child commenced coughing violently, which continued until 10 o'clock; when, exhausted, he fell into a sleep; but, after a few hours, he awoke and coughed incessantly with great difficulty until about noon, 11th of May, when the grain of corn was forced into the mouth and swallowed, very much to his own relief and the comfort of his friends. He has had no unpleasant symptoms since.

GLASGOW, KY., November 2, 1852.

Scirrhus of the Liver. Reported by JAMES CROOK, M.D., of Dayton, Ohio.—Mrs. H. W. died on the 27th of March, 1852, aged 43 years, and a *post-mortem* examination was made by Drs. O. Crook, Wm. Egory, and myself. She was of the bilious sanguine temperament, habits regular and temperate. She had laboured under disease for three years, but had been confined to her bed only four months of this time. Her liver was enormously enlarged, and extended from the sixth rib to the symphysis pubis, reaching entirely from one side of the body to the other, completely covering and displacing the organs within the cavity of the abdomen. There were large excrescences on the surface of the whole liver, varying from the size of a pigeon's-egg to that of a hen's-egg. The whole organ was one irregular and shapeless mass of scirrhus, with the exception of about the one two-hundredth part, which was immediately around the gall-bladder. The vessels were entirely obliterated. The weight of the organ was twenty-four and three-quarter pounds. One large mass of cancerous growth of an oval shape was found lying in the transverse fissure of the liver, entirely separated from all the structures around. This, probably, was the result of a cancer-cell, which having become detached, grew by its own inherent vitality. There was a mass of cancer attached to the posterior and inferior portion of the uterus. The gall-bladder was full of bile and biliary concretions. The liver seemed to have continued to fulfil its functions until within three days before her death, since she did not become jaundiced until that time, after which her skin became perfectly yellow. The serum which was effused within the cavity of the abdomen was tinged with bile. The liver was adherent to the diaphragm, the stomach, the ribs in front, and the duodenum behind. The omentum and pancreas were much atrophied; the omentum had wasted away to mere shreds, and the pancreas could only be recognized by its location. The spleen was considerably enlarged and studded all over its surface and through its substance with tubercles, which is a singular fact.

The lungs were healthy, but light in colour and in weight. The pain experienced was never very severe until after the liver had increased to such an extent as to press upon the sacral plexus of nerves, when there was great pain in the nates and posterior part of the thigh. All the fibres of the abdominal muscles were completely absorbed in many places where the prominent portions of the liver pressed upon the anterior walls, until nothing remained but the integuments, which were beginning to slough away. The whole body was much emaciated.

DAYTON, OHIO, April 10, 1852.

Case of Dipsois Avens. By F. L. KEYES, M.D., of Jerseyville, C. W. —P—C—, a labourer, called at my office on the 22d of January, 1851, complaining of excessive thirst, which had increased very much within three months past. He stated that he was obliged to drink frequently during the day, also to have a pail of water at his bedside during the night, which he usually drank up before morning, without the least abatement of his thirst. In other respects he enjoyed perfect health. He had suffered from this morbid action more or less for ten years, but not so severely as at present. He attributed his complaint to having eaten a quantity of green garden beans when a lad of about ten years of age. He also stated that he had taken various medicines to no effect.

After reflecting on the case, we came to the conclusion that the complaint depended upon, or was kept up by, a peculiar action of the stomach, perhaps not unlike gastrodynia. From the favourable results obtained by the use of

pot. iodo-hydrarg. in the latter disease, we thought proper to depart from the common course of treatment, and try its medical powers in this disease, since other remedies which had been used had signally failed; accordingly, we directed the following prescription, viz.: R. Hydrarg. deuto-iodidi gra. iv; Pot. iodidi ℥j; Aquæ destillat. f℥; M. ft. solutio. *Cujus æger guttus quinque ter in die sumatur* To chew daily pieces of rad. rhei, and swallow the juice. In a few days, the thirst became less urgent; and before the medicine was near all taken the patient considered himself well, and has had no return of the complaint since.

JERSEYVILLE, C. W., Dec. 27, 1852.

Transposition of the Stomach and Duodenum. Concealment of the Colon behind the Duodenum. Strangulation of the Colon rapidly fatal, resulting from this congenital malposition. By DAVID PRINCE, M. D., Jacksonville, Ill. —Sarah Hardin, aged six, of rather slender form inherited from both parents, has all her life been subject to colics of a slight character.

During the day (January 30), she complained occasionally of pain in the abdomen, but played with the other children the greater part of the time, and ate her breakfast and dinner as usual. About 5 P. M., she ate a little toast, and lay down. Growing gradually worse, and vomiting, her father called upon Dr. Henry Jones, who prescribed some purgative medicine, only a portion of which was retained.

The paroxysms of pain became more frequent, with tenderness on pressure upon the abdomen. The extremities were cold, and the pulse flagged. At 1 A. M. (31st), Dr. Jones saw her again. No pulse. Injections were given, and sinapisms applied to the abdomen. In Dr. Jones's absence, the friends gave anodynes and carminatives by the mouth. The child slept an hour, and awoke in a paroxysm of pain, followed by vomiting of the contents of the stomach. Some fecal matter had been passed from the rectum early in the night, but afterwards nothing but the injections. At 7 o'clock, when I was called, the countenance was anxious, the breathing thoracic, the skin livid, and in a few minutes she expired, having manifested no mental confusion.

Post mortem, at 3 P. M. Abdomen not tense; omentum absent. Small intestines exhibited full venous congestion, neither distended nor collapsed.

The ascending ramus of the colon was of a chocolate colour and greatly distended, with its cæcal extremity in the left iliac region, and free, the mesocolon allowing it as much freedom of position as any loop of small intestine. About a pint of brown or chocolate serum was removed from the cavity of the peritoneum, and some flocculi of coagulable lymph were seen, but no adhesions. The parietal peritoneum presented everywhere numerous minute points of arterial congestion, in contrast with the dark hue of the intestines. The rectum, and sigmoid flexure, and descending ramus were collapsed and pale, but the transverse colon did not at once appear. *The mystery was now solved.*

The stomach, of its natural hue, and collapsed, was found reversed, the large or cardiac extremity being on the right side under the large lobe of the liver, and the small or pyloric extremity pointing to the left. The head of the pancreas rose from its ordinary confined position to meet the duodenum, which pursued its course to the right, passing *anterior* to the colon, and closely binding it down, and acquiring the usual length of mesentery as it became jejunum. The mesenteric artery, with the accompanying veins and nerves, passed by the side of the duodenum anterior to the colon, causing a permanent encroachment upon the colon for the space of an inch and a half, so that, upon

being released from this congenital confinement, the canal would only admit the passage of the middle finger. The valvular structure characteristic of the colon was here absent, the mucous membrane presenting a smooth surface. Upon relieving this natural stricture, the contents of the ascending ramus passed freely into the hitherto collapsed portion. The line of demarcation between the inflamed and uninflamed parts was as distinct on the cæcal side of this stricture as if a ribbon had been tied around the intestine, and the ascending ramus painted up to this band. No substance was found within the intestine capable of causing the obstruction.

Remarks.—There were only twelve hours of serious sickness, without the severe symptoms which complete strangulation usually produces. Death took place before distinct adhesions had time to form, though the adhesive material had been produced to a slight degree, and before any tumefaction of the peritoneum had occurred. The inflammation was in its stage of congestion verging into the adhesive.

The constricted portion of the intestine was not here inflamed, but presented the same paleness which characterized the collapsed intestine beyond. The inflamed intestine was all on the proximal side of the stricture and greatly distended, though the inflammation had not passed into the softening stage.

The case was beyond the reach of surgery, the stricture being behind the duodenum, and the great vessels going to and from the small intestines.

DOMESTIC SUMMARY.

Yeast in Diabetes.—Prof. Wood stated, at a recent meeting of the Philadelphia College of Physicians (Dec. 1, 1852), that he had a case of diabetes then under treatment in the Pennsylvania Hospital, which, in the results thus far obtained, was not without interest in a therapeutic point of view. He would first present a brief sketch of the case, drawn up by his young friend, Dr. R. A. F. Penrose, one of the resident physicians of the hospital, and would then offer a few remarks.

"Mary Ann Cain, born in Ireland, a domestic, aged thirty, was admitted into the hospital, November 16, 1852, for palpitation of the heart. Upon examination, the heart was found acting with unusual energy and quickness; but the sounds were normal. Her general condition was one of extreme emaciation, her weight eighty-three pounds, the pulse frequent but not strong, the tongue red and smooth. She stated that she suffered much from constant thirst, and had a perpetual desire to eat. Attention was directed to the urine; and it was found that she was passing from 18 to 20 pints daily, of a specific gravity varying from 1036 to 1040. On the addition of yeast, it fermented briskly. Boiled, after the addition of solution of sulphate of copper, and solution of caustic potassa, it yielded a reddish-brown precipitate; boiled with solution of potassa alone, it acquired a dark-brown or bistre tint. The case was clearly one of saccharine diabetes.

"Two days after admission, she was placed upon an animal diet, with non-farinaceous vegetables, and one small biscuit three times a day. Cod-liver oil was also directed, and a *teaspoonful of yeast, three times daily, immediately before meals.*

"22d. The quantity of urine now passed in 24 hours was 10 pints, and the specific gravity 1022. The thirst and appetite were much diminished. The same treatment was continued.

"27th. The patient complained of total loss of appetite, and could not take her cod-liver oil. The tongue was extremely red and inclined to dryness, and there was pain on pressure in the epigastrium. The quantity and sp. gr. of the urine were as at the last date. The cod-liver oil and animal diet were suspended,

and she was placed upon farinaceous drinks with milk. A pill, composed of one grain of the blue mass and a quarter of a grain of opium, was directed four times a day, and the yeast was continued.

"30th. The patient felt much better, her tongue was moister and less red, and the gastric symptoms were much ameliorated. Not finding milk to agree with her, she had lived chiefly on oatmeal gruel, with a soft-boiled egg occasionally. The quantity of urine had now been reduced to 7 pints in twenty-four hours, and its specific gravity to 1020.

"31st. The patient continues as yesterday, the urine having amounted, in the last period of twenty-four hours, to only six pints; the specific gravity not examined."

Much light, Dr. Wood observed, had recently been thrown upon the pathology of diabetes. The disease is now admitted to be characterized by sugar in the blood, the kidneys being only secondarily affected. The experiments of McGregor proved that sugar exists in great excess in the stomach of diabetic patients after eating, and it may readily be supposed to pass thence into the circulation. Bernard has shown that the liver, in its normal action, produces sugar out of the portal blood, and that this sugar passes through the vena cava, right side of the heart, and pulmonary arteries into the lungs, where, in the healthy state, it is wholly consumed. Excess in the sugar-producing action of the liver, or deficiency in the sugar-consuming action of the lungs, may be followed by the entrance of saccharine matter into the general circulation, and thus give rise to diabetes. The same physiologist proved that, by irritating a certain point of the medulla oblongata, the liver was made to generate a great excess of sugar, which, escaping decomposition in the lungs, entered the arterial circulation, and passed out with the urine.

We thus perceive that there may be various sources of the saccharine impregnation of the blood. *In the first place*, it may arise from some defect in the gastric digestion, in consequence of which farinaceous and other nutritive substances are converted into glucose or grape-sugar, which remains unchanged; or, *secondly*, from hypertrophy or other disease of the liver causing an over-activity in its sugar-producing function; or, *thirdly*, from disease of the lungs impairing their power of consuming the sugar; or, *fourthly*, from irritation of the nervous centre in the medulla oblongata, which appears to control the action of the liver in relation to this product; or, *lastly*, from two or more of these sources combined.

Now, in the case before us, no organic affection of the liver or of the lungs could be detected, and there was no reason to suspect the medulla oblongata; but the smooth reddened state of the tongue, and the epigastric tenderness seemed to point specially to the stomach as the seat of the disease.

In the number of the *Edinburgh Monthly Journal of Medical Science* for October last, it is stated that Dr. Gray, of Glasgow, had been induced to make trial of *rennet* in a case of diabetes, in the hope that, as this body converts sugar out of the body into lactic acid, it might be found to produce a similar change within the stomach; and the lactic acid thus generated might be eliminated from the system, or rather decomposed by the respiratory process. In the case referred to, the urine was copious, of the specific gravity 1045, and strongly saccharine. A teaspoonful of *rennet* was given three times a day. In eight days, the specific gravity of the urine was reduced to 1025, with but a trace of sugar; in twenty-five days, the quantity was four pints, and the density 1022.5, and no sugar could be detected. At the end of six weeks, the urine remained free from sugar, and the patient had so far improved in health and strength as to return to his work.

It occurred to me, observed Dr. Wood, from the results of this case, that yeast might prove equally beneficial, by causing a decomposition of the sugar in the stomach such as it is well known to occasion out of the body, resulting in the production of acetic acid. Being under the impression that, in the case now reported to the College, the primary disease probably resided in the stomach, and that the diabetic sugar was generated there, I determined to try the effects of this remedy. The patient had been two days in the house before she was placed under treatment, and during this period no change had taken place in

the quantity or character of the urine. It will have been noticed that quickly after the commencement of treatment, a very great change took place in both these respects, the quantity of urine being reduced, in the course of four days, from twenty pints to ten daily, and the specific gravity from 1036 or 1040 to 1022. But the almost exclusive use of animal food may be supposed to have contributed to this result. In consequence, however, of the gastric inflammation, it was necessary to suspend this diet, and to allow the patient to use farinaceous food, the yeast being continued. So far from any increase of urine in consequence of this change of diet, its quantity was still further reduced, so that, upon the last day upon which it was examined, it did not exceed six pints, while the specific gravity was as low as 1020, the quantity having thus been reduced from twenty pints to about double that of health, and the density from 1040 to that of normal urine. There can be no doubt whatever that the sugar has been very greatly diminished; and there is no cause apparent to which the result can be ascribed except the use of yeast.

What may be the further progress of the case cannot, of course, be foreseen. Even should we succeed in preventing altogether the elimination of sugar with the urine, it does not follow that the case will end in recovery. The remedy is addressed only to one of the effects; a very important effect, it must be admitted, and itself capable of producing great mischief, but still by no means the whole disease. Nevertheless, if, by the steady use of a remedy so little disagreeable as yeast, we can prevent the abnormal production of sugar, and the exhausting effects on the system of the excessive secretion of urine occasioned by it, we shall have gained one great point. We shall at least gain time for accurately investigating the source of the evil, and applying such remedies as may offer a reasonable hope of permanent benefit.

At a subsequent meeting of the College (Jan. 5, 1853), Dr. W. stated that there had been since no further improvement in this case. The employment of the yeast had been persevered in, except for a short period during which rennet was substituted without any appreciable effect; but there has been rather a falling back than continued diminution of the symptoms. The patient is better, however, than when first subjected to treatment. The quantity of urine is diminished one-half, and its specific gravity is considerably less.

Dr. PEPPER has employed the yeast in a case of diabetes; the effect appeared at first to be strikingly beneficial, but this did not continue for any length of time. Dr. P. has used rennet steeped first in tepid water, and subsequently, with the view to increase its strength, in wine, but has not observed any good effects to result from its employment. He suggested that a trial should be made of pepsin as a remedy in diabetes.—*Quarterly Summary of the Transactions of the College of Physicians of Philadelphia*, Vol. I, N. S., No. 9.

Fracture of the Processus Dentatus.—[Prof. WILLARD PARKER relates (*New York Journ. Med.* March, 1853) the following very remarkable case of fracture of the processus dentatus, in which the patient continued to follow an active occupation for five months, when death suddenly took place. The case occurred in the practice of Dr. Bigelow:—]

The patient, Mr. G. B. Spencer, was a man forty years of age, a milkman by occupation, of medium height, nervo-sanguine temperament, of active business habits, and capable of great endurance. His life was one of constant excitement, and he was addicted to the free use of liquors. He suffered, however, from no other form of disease than occasional attacks of rheumatism, for which he was accustomed to take remedies of his own prescribing, which were generally mercurials, followed by liberal doses of the iodide of potassium, "to work it all out of the system."

On the 12th of August, 1852, while driving a "fast horse" at the top of his speed on the plank road near Bushwick, L. I., he was thrown violently from his carriage by the wheel striking against the toll-gate. He alighted upon his head and face, about fifteen feet from the carriage. Upon rising to his feet, he declared himself uninjured, but soon after complained of feeling faint; after drinking a glass of brandy, he felt better, got into his carriage with a friend, and drove home to Rivington Street in this city, a distance of more than two

miles. There was so little apparent danger in his case that no physician was called that night. Early on the morning of the following day, Dr. B. was called to visit him. He found his patient reclining in his chair, in a restless state, and learned that he had suffered considerable pain in the back part of his head and neck during the night. He was entirely incapacitated to rotate the head, which led to the suspicion of some injury to the articulations of the upper cervical vertebræ; but so great a degree of swelling existed about the neck as to prevent an efficient examination. There was no paralysis of any portion of the body, his pulse was about 90, and his general system but little disturbed. Warm fomentations were applied to the neck, and a mild cathartic administered. On the following day, there was no particular change in his symptoms, but, as there existed considerable nervous irritability, tinct. hyoscyami was prescribed as an anodyne, and fomentations of hops applied locally. On the third day leeches were applied to the neck, and after this the swelling so much subsided that on the fifth day an irregularity was discovered to exist in the region of the axis and atlas, which had many of the features of a partial luxation of these vertebræ.

At this time he began to walk about the room, having previously remained quiet on account of the pain he suffered on moving. He persisted in helping himself, and almost constantly supported his head with one hand applied to the occiput. He often remarked, if he could be relieved of the pain in his head and neck, he should feel well. He began to relish his food, and the swelling nearly disappeared, at the end of a week, leaving a protuberance just below the base of the occiput, to the left of the central line of the spinal column, with a corresponding indentation. Notwithstanding strict orders to remain quietly at home, on the ninth day after the accident he rode out, and in a day or two after returned as actively as ever to his former occupation of distributing milk throughout the city to his old customers. During the following four months, no material change took place in his symptoms, although he constantly complained of pain in his head. For this period he did not omit a single day his round of duties as a milkman, which occupied him constantly and actively from five o'clock in the morning to nearly noon. On the 1st of November Professor Watts examined him, and inclined to the opinion that there was a luxation of the upper cervical vertebræ.

About the 1st of January, 1853, the pains, from which he had been almost constantly a sufferer, became more severe, and he was heard to complain that he could not live in his present condition; he remarked also that he had heard a snapping in his neck. After going his daily round on the 11th of January, he complained of feeling cold, and afterwards of a numbness in his limbs. In the evening he had a chill, and complained of pain in his bowels. He passed a restless night, and arose on the following morning about six o'clock; he was obliged to have assistance in dressing himself, and experienced a numbness of his left, and afterwards of his right side. He attempted to walk, but could not without help, and it was observed that he dragged his feet. He sat down in a chair and almost instantly expired at eight o'clock A. M. on the 12th of January, precisely five months from the receipt of the injury.

The autopsy was made thirty hours after death, by Dr. C. E. Isaacs, in presence of several medical gentlemen.

Muscular development uncommonly fine; an unusual prominence observed in the region of the axis and atlas. On making an incision from the occiput along the spines of the cervical vertebræ, the parts were found to be very vascular. These vertebræ were removed *en masse*, and a careful examination instituted. The transverse, the odontoid (ligamenta moderatoria), as also all the ligaments of this region, excepting the occipito-axoideum, were in a state of perfect integrity; this latter was partially destroyed. A considerable amount of coagulated blood was found effused between the fractured surfaces, some of it apparently recent, but much of it was thought to have occurred at the time of the accident, and afterwards to have prevented the union of the bones. The spinal cord exhibited no appearances of any lesion. The odontoid process was found completely fractured off, and its lower extremity inclining backwards towards the cord. Death finally took place, doubtless, from the displacement of

the process, during some unfortunate movement of the head, by which pressure was made upon the cord. The destruction of the occipito-axoid ligament, which would otherwise have protected the contents of the spinal cavity, must have favoured this result.

It would at first seem impossible that life could be prolonged, at least for any length of time, in an accident of this nature. And such was the prevailing opinion until recently. If, however, we reflect upon the anatomy of this region, and consider that the only lesion was a fracture of the odontoid process, the contiguous vertebrae remaining nearly in their natural relations, and the ligaments maintaining their integrity, our first impressions will change. As it is the office of this process to steady the head upon the trunk, that function can be equally well performed externally by the hands, as was done in this case, and others to which we shall allude. But yet it is remarkable that a person suffering this accident, should be able, for such a length of time, to follow, actively and unremittingly, a rough occupation, with little or no inconvenience. He was liable to death from the most trivial accident.

[Professor P. refers to a similar case in the practice of Mr. CLINE (*Cooper on Fractures and Dislocations*) and one reported by Mr. PHILLIPS (*Med. Chirurg. Trans.* xx.)]

Ovariectomy terminating Fatally.—[Ovariectomy was performed last summer by Prof. GROSS, and though the termination was unfortunate, the distinguished operator has had the courage to publish it. The following are its details:—]

Miss D., the subject of this case, was twenty-two years of age, rather tall and slender, and of nervo-sanguineous temperament. Her general health had always been pretty good until within a short time of the operation which I am about to describe; she had menstruated regularly since her fifteenth year, and had never suffered materially from derangement of her digestive organs. In the winter of 1848, she first perceived a small tumour in the lower part of her abdomen, free from pain and tenderness, perfectly movable, and inclining somewhat more to the right side than to the left. This continued steadily to increase in size, at first gradually, and afterwards rather rapidly, until the following autumn, when it was so large as to cause serious inconvenience by its weight and bulk, as well as by its pressure upon the diaphragm and abdominal viscera. I saw Miss D. for the first time on the 11th of May, 1849, along with Dr. Knight and Professor Miller. Her general health was still good, although she was considerably emaciated; but the abdomen was greatly distended by a tumour, which, upon examination, was found to be partly fluid and partly solid, smooth and uniform upon the surface, and entirely devoid of pain and tenderness. The uterus appeared to be perfectly sound; even the menstrual function had never been seriously deranged. But little was done in the way of constitutional treatment. On the 5th of June, with the concurrence of Dr. Knight and Dr. Miller, I introduced a trocar into the swelling and drew off three gallons of a thick, ropy, drab-coloured fluid, readily coagulated by heat, alcohol, and acids. The paracentesis was followed by great relief; but as the fluid soon began again to accumulate, it was thought best to advise the excision of the tumour, as the only chance of effecting a permanent cure. The patient promptly and cheerfully assented to our decision.

The operation was performed on the 19th of June. The bladder and bowels having been previously emptied, the patient was placed upon a table, and put fully under the influence of chloroform. The incision was made along the linea alba, and extended from near the pubes to three inches above the umbilicus, being at least one foot in length. The tumour, being thus completely exposed, was found to be very red and vascular upon its surface, and to adhere all around, inferiorly, by bands of false membrane, which, however, were easily detached by the hand. The pedicle was quite narrow, and, after being surrounded by a stout ligature, it was divided and the morbid growth lifted from its bed. Although the ligature had been tied with great firmness, it immediately slipped off after the part was cut, thus rendering it necessary to apply another. Previously, however, to doing this, a large artery included in the pedicle, and bleeding freely, was secured separately, lest the large ligature

might come off again, and thus lead to serious, if not fatal hemorrhage. A fasciculus of false membrane, on the left side, appearing to bleed, was treated in a similar manner. The blood being now carefully removed from the peritoneal cavity, the ligatures were brought out at the inferior angle of the wound, the edges of which were next approximated by nine twisted sutures, the needles being carried through the muscular fibres, about an inch and a quarter from each other. Strips of isinglass plaster were now placed in the intervals between the needles, and a narrow and rather thick compress was stretched along each side of the wound; the whole being supported by a broad bandage, passed round the abdomen and upper part of the thighs. The patient, pale, considerably exhausted, and in great pain, was put to bed, and took immediately one grain of morphia, followed by half a grain more in two hours.

The operation was performed at 11 o'clock in the morning, and at 4 o'clock in the afternoon I found my patient quite comfortable. She had slept a little, and was nearly free from pain; the skin was moist, the extremities warm, and the pulse soft and one hundred and twenty in the minute. She had vomited once soon after the operation, probably in consequence of having drunk too much water.

On the morning of the 20th, I learned that the patient had slept well nearly all night; she had urinated without difficulty; the abdomen was free from pain and distension; she could lie equally well on her back and sides. In the evening, the abdomen was slightly tumid and somewhat tender on pressure, the countenance was a little flushed, and the pulse was about 120. Half a grain of morphia was ordered to be taken at bedtime.

On the 21st, there was some tympanitis, but in other respects the patient was doing well. She had again passed a good night, had considerable appetite, and was free from abdominal tenderness.

On the 22d, an enema of half an ounce of castor-oil and a pint of flaxseed tea was ordered, and this was succeeded during the day by a slight fecal discharge, accompanied by a considerable quantity of flatus.

From this time on everything progressed favourably. On the 26th, she took a mild vegetable pill, which was followed by two small alvine evacuations; on the 27th, eight days after the operation, I removed the four upper needles, the rest being allowed to remain until the next morning. The wound, which was now supported merely by broad adhesive strips, had united entirely by the first intention, except at the sutures, where slight ulceration had commenced; the bowels moved spontaneously; and everything promised a happy issue.

On the 2d of July, menstruation set in, and continued until the 4th, when it ceased. The patient at this time looked pale and feeble; she was accordingly directed to take quinine and brandy in moderate quantities. Under this treatment, together with the aid of a light but nutritious diet, and good nursing, she went on well until about the 8th of July, when in consequence, apparently, of exposure to damp and heavy draughts of air, occasioned by a change in the weather, she was seized with a severe chill, followed by excessive prostration. Means were immediately resorted to for producing reaction, but several hours elapsed before she completely rallied, and she was never well afterwards. It was but too evident that peritonitis was going on, and that, notwithstanding the use of blisters and appropriate internal remedies, the case must terminate fatally. Miss D. lingered until the 17th of July, at 4 o'clock, when she expired.

The dissection, made twelve hours after death, was conducted by my friend, Dr. T. G. Richardson, who has kindly furnished me the following account of it. There was no external sign of putrefaction; the body was greatly emaciated; the abdomen was tense and tympanitic, with a sense of obscure fluctuation, and upon puncturing it, a considerable amount of gas issued from it. The walls of the abdomen were so closely adherent to the viscera as to be dissected off with difficulty; and the parietal portion of the peritoneum, greatly thickened throughout its whole extent, was firmly attached to the omentum, liver, spleen, and intestines, which were so completely buried in lymph as to be hardly distinguishable from each other. Owing to the peculiar manner in which the viscera were united to each other, the peritoneal cavity was divided into three distinct compartments, namely, two lateral and abdominal, and one pelvic, the

former containing each about half a gallon of turbid serum, mixed with shreds and cakes of lymph, and the latter about a pint of sero-purulent matter.

The internal extremity of the ligature which had been cast round the pedicle of the tumour lay loose in the pelvic cavity, but so completely were the organs concealed by the inflammatory deposits, that it was impossible to discover the point where it had been attached. The outer extremity was hanging out at the inferior angle of the wound, where it had effectually resisted the various attempts that had been made to separate it. The left ovary, with difficulty found, was somewhat softened, but in other respects perfectly natural. The uterus, with the exception of a little congestion of its lining membrane, was also unchanged.

The internal surface of the stomach and bowels, and the substance of the liver and spleen, presented nothing of a pathological character. The bladder also was sound.

The tumour, after its removal, was found to be of an ovoidal shape, being larger above than below, soft and fluctuating, and of a uniform outline, except at three points, where it was rendered slightly protuberant by the presence of small cysts. It was from ten to twelve inches in length, about eight in breadth, and nearly the same in the antero-posterior diameter. Its weight was about nine pounds. Laid open, it was found to consist of a single sac, filled with reddish serum and grumous blood, adhering to its surface. Its walls were fully an inch in thickness, and bore a very close resemblance to those of the gravid uterus. The adventitious or accessory cysts, previously mentioned, were attached to the main sac, but did not communicate with it. The largest, situated at the base of the tumour, was of the size of a hen's egg, and was occupied by a substance similar to that of the main bag; while the two smaller were filled with sero-albuminous fluid.—*Western Journal of Medicine and Surgery*, Jan. 1853.

Ovariectomy.—[Dr. R. L. HOWARD, Professor of Surgery in Starling Medical College, reports (*Ohio Medical and Surgical Journal*, January 1853), the two following cases, in which he had performed ovariectomy in one successfully, and the other unsuccessfully.]

CASE I.—*Ovariectomy in a young lady of 17 years, by a new method—Recovery*.—Miss R. J., æt. 17, of Franklin County Ohio, consulted me in August last, on account of a tumour in the abdomen. She informed me that in March last she had an attack of measles and recovered from the disease without any unusual symptoms. In May following, she experienced a pain in her left side which was persistent and crescent in its character. About the first of June she detected a "lump in the lower part of her bowels." This rather rapidly increased in size until the time of the consultation adverted to. On examination, I found a regular oval tumour filling the whole cavity of the abdomen and distending to a considerable extent its walls. Obscure fluctuation revealed more or less fluid in the centre of the tumour. The hymen was absent, but the uterus was found, on examination per vaginam, to be in a healthy condition and unconnected with the diseased ovary.

On the 18th of September, I visited Miss J., and found her labouring under considerable general disturbance and pain in the right side, apparently from the pressure of the tumour. Her pulse was remarkably frequent, beating some 130 to 140 per minute. The symptoms being of a distressing character, rapidly becoming worse, I, in consultation with Drs. G. W. and J. Helmick, decided to tap the tumour. On introducing the trocar, about a gallon of very thick albuminous fluid escaped, which completely relieved the patient of all her urgent symptoms. She remained quite comfortable for about two weeks, when the rapidly accumulating fluid and the increase in the solid growth, caused a return of all the distressing symptoms.

On the 8th of October I tapped her again, drawing off about the same quantity of fluid, with precisely similar results; but in a few days the tumour could be observed to grow from day to day, and it became evident that something more effectual must be done, if the life of the patient was to be rescued from the fatal result that awaited the progress of the disease.

On the 14th of October, a consultation was held with the attending physicians adverted to, and several leading physicians of Columbus, all of whom, without a dissenting voice, approved of an operation for the removal of the tumour at once.

The proper arrangements being made, and the patient placed upon a table, and fully under the influence of chloroform, I made an incision from three inches above the umbilicus on the linea alba to the pubis, dividing the integument, fascia, tendon, and peritoneum. The ovarian tumour was fortunately found free from adhesions; but its attachments to the uterus, &c., were rather extensive. I now adopted an expedient to which is due, *mainly*, the success of the operation. Fearing the effect of the ligature upon the delicate peritoneum, I divided it completely around the neck of the tumour upon a grooved director. In the groove or channel made by this dissection, I applied the ligature, which sunk deeply and readily into the loose cellular structures as I tightened the knot, without impinging in the slightest degree upon the contiguous peritoneum. The neck of the tumour was divided about one inch from the ligature, and the wound dressed in the ordinary manner. The whole operation was performed, and the patient placed in bed, without the least consciousness of pain on her part.

Since the operation, not an unfavourable symptom has occurred. The ligature came away, and the parts healed kindly; and now, Dec. 9, we believe she is perfectly well.

I had omitted to mention that the patient had several attacks of intermittent fever in August and September, and that she had not menstruated for near three months before the tumour was removed. I have not learned whether her menses have returned since.

I desire to call the attention of surgeons to that part of the operation wherein the peritoneum was divided, for the purpose of excluding it from the action of the ligature. I am not aware that the operation has ever been performed in this manner before, and yet it may have been; as I have not, on account of the pressure of my engagements, made myself familiar with the literature of Ovarian Surgery. I deem this step in the operation worthy of the highest consideration, and, considering the proclivities of the peritoneum to inflammatory affections, particularly under the influence of mechanical injury, I am only surprised that this proceeding has not been universally adopted.

CASE II.—Ovariectomy—Death on the 17th day after Operation.—Mrs. H. M., aged 28, Franklin County, Ohio, after bearing her second child, about five years ago, observed a small tumour in the left iliac region, which was unattended by pain or inconvenience. Three years ago, in August last, she gave birth to a son, and third child. In January, 1851, she bore another son, her fourth and last child. Before her last pregnancy, the tumour filled and distended the cavity of the abdomen. During and subsequent to pregnancy, however, she enjoyed very good health, suffering only from mechanical inconvenience. Subsequent to the birth of her last child her tumour grew more rapidly, until I saw her for the first time, in company with Dr. J. B. Thompson, her family physician, on the 29th January last. On examination per vaginam, her uterus was found in its normal position and condition, but she, nevertheless, insisted that she was some five or six months advanced in pregnancy. Her reasons were, that her menses had been absent during that period, and, that she could distinctly feel the motions of her child. Not being able to convince her of the propriety of drawing off the fluid contained in the ovarian cyst, I left her, and did not see her again until the 13th of August last. Of course she had abandoned the idea of pregnancy, and was willing to submit to the operation of paracentesis. This operation was not performed until the first day of September, when nine gallons of dark fluid was discharged. She was exceedingly comfortable, and had a rapid recovery. After the evacuation of the fluid, there was found a large solid growth in the abdominal cavity.

Oct. 14th, we tapped her again, and removed about eight gallons; and, on the 26th, in consultation with her regular physician, and several other eminent physicians of our city, we proceeded to perform the operation of ovariectomy. The patient being placed upon a table, under the influence of chloroform, I

made an incision from near the umbilicus to the pubis. On reaching the tumour, its surface was found firmly adherent to the abdominal peritoneum. The adhesions were broken up from four to six inches beyond the boundaries of the incision. Being now persuaded that adhesions were general, and perhaps, universal, over the entire surface of the tumour, I abandoned my efforts at separation—removed by excision a portion of the ovarian cyst, introduced a tent made of lint through the opening into its cavity, for the purpose of preventing closure, dressed the wound by sutures and adhesive strips, and placed the patient in bed.

The shock of the operation was but slight, and she soon became comfortable. For several days she suffered but little, but a low form of inflammatory action attacked the tumour and peritoneum. The discharge became intolerably offensive, and under its influence she gradually sunk, until, the 17th day after the operation, she died, apparently from exhaustion.

Collodion in the Treatment of Bubo.—Dr. J. H. CLAIBORNE states, that he has used collodion for discussing bubo, and that it has proved superior to any other discutient. His mode of employing it is as follows: "When a patient with a bubo presents himself, if there be not much acute local inflammation, no matter formed, and no constitutional reaction, I immediately shave off the capilli from and around the tumour, and with a camel's-hair pencil apply the collodion upon the place, allowing one layer to dry before the application of another, until I form a scab or membrane of such thickness as I think will exert the proper compression. Sometimes the application has to be renewed in the course of twenty-four or forty-eight hours. If put on too thickly, it will give a great deal of pain; and I have seen it contract so tightly upon the tumour, that the epidermis would be split in fissures around the borders of the application. This will serve to give some idea of the force of the compression which it will exert. After the application of the collodion, it is better that the patient remain quiet for a day or two, take an aperient, and restrict his diet, though I have succeeded in discussing a chronic bubo when not an hour has been lost from his usual avocations. If there be much inflammation about the tumour, I usually endeavour to subdue this by general and local depletion, saturnine applications, rest, &c., before applying the collodion; and if the bubo be of venereal origin, institute, of course, the specific treatment for the existing disease.—*Stethoscope*, March, 1853.

Repair of Fractured Bone.—Prof. FRANK H. HAMILTON, in a paper "On Provisional Callus in Fractured Bones," (*Buffalo Medical Journal*, Feb. 1853,) has given the conclusions at which he has arrived relative to the mode of repair of fractured bone—"conclusions nearly or quite identical," though independently arrived at, and by a somewhat different method, he says, with those promulgated by Prof. Paget, in his lectures before the Royal College of Surgeons of England. The doctrines taught by Prof. Paget were published in the No. of this *Journal* for Oct. 1849, pp. 483-5, and are well worthy of, and had, we believed, attracted much attention. But they seem to have escaped the observation of Prof. Hamilton, who states that he has seen no notice of Prof. Paget's views in American journals, and adds, what cannot but be regarded as not very complimentary to those alluded to, that "among the many eminent surgeons with whom I have conversed, both teachers and practitioners, only one or two retained a vague impression of their existence."

OBITUARY RECORD.—It is with deep regret that we have to record the death of W. E. HORNER, M. D., Professor of Anatomy in the University of Pennsylvania, which took place in this city on the 13th of March, in the 60th year of his age. Dr. H. was a native of Virginia, but has been for nearly forty years a resident of this city, during the greater part of which period, he was connected with the chair of Anatomy in the University. He long since achieved for himself the reputation of being one of the best anatomists of our country, and was universally esteemed for his honourable and upright character.

We have not the materials, at present, to enable us to present a sketch of the life and character of the deceased, but we trust that some one of his friends will undertake this task. In the mean time, we take pleasure in presenting the following proceedings:—

March 17, 1853.

At a Special Meeting of the Medical Board of St. Joseph's Hospital, held this day, for the purpose of taking action in regard to the death of their late President, WILLIAM E. HORNER, M. D., who departed this life on the 12th inst., it was unanimously—

Resolved, That in Dr. Horner, this Board have to lament one of the founders of the Hospital, a zealous and efficient advocate of its interests, and one of its most liberal benefactors, who spared neither his means, his labour, nor his skill, in furthering its welfare, and in healing the diseases of its inmates; that in him they also mourn a colleague and a friend, who in all his intercourse was urbane and considerate, and ever prompt to sustain them by his influence, and assist them by his counsel; one with whom it was a pleasure to associate, and from whose exemplary candour they could always look for a just appreciation of their own acts.

Resolved, That a copy of this Resolution be furnished for publication in the *Medical Examiner* and the *American Journal of the Medical Sciences*.

ALFRED STILLÉ, *Chairman*.

J. HENRY SMALTZ, *Secretary*.

—
OBITUARY NOTICE of the late WILLIAM POWER, M. D., of Baltimore.—Died, in Baltimore, on the 15th of August, 1852, and in the 39th year of his age, William Power, M. D., late Professor of the Theory and Practice of Medicine in the University of Maryland.

When the young die, we grieve for the hopes that have faded like the flowers that wither on their bier; when the places of the old know them no more forever, we mourn that the tree which had long sheltered us, and been perchance a landmark to the wandering, has fallen from its station; but when death smites the vine that was still giving us nourishment with its fruit and refreshment with its shade, how sadly tender is the memory of its fragrant blossoms, how mournful and desolate seems the future of whose riches it had offered so liberal a pledge. Such was our departed friend. His nature, his culture, his earlier, and his maturer fruits, combined to make his life a blessing to those who partook of his gifts or dwelt within his shadow; but, even whilst supplying others most largely, a worm was at his own core; so one by one his branches withered and he fell away from among the living.

His life was a life of earnest study, and of noble ambition. He came into the world of professional action thoroughly furnished with all that could make him a wise and accomplished physician. Just twenty years before his death he took the degree of A. B. at Yale College, and in the following year commenced in the office of Dr. Buckler a course of study, which, until the last year of his life, he never ceased zealously to pursue. In 1834, he entered, as a Resident Student, the Baltimore Almshouse Hospital, the institution of which he was destined to become, in later years, the most distinguished ornament. After graduating in medicine, and performing his hospital duties with ability and zeal, he determined to increase his knowledge by a course of study and observation in Europe, a step of which at that time there were but few examples in his native city.

The writer of this sketch first knew him in the midst of the scientific turmoil of which Paris was then the seat, and can testify to the ardent and steadfast enthusiasm which animated him; to his constant and unwearied attendance at the hospitals, the laborious records of his observations, his intelligent and discriminating discussions of the daily lessons which, in common with a crowd of American listeners, he was learning from the lips of Louis and Chomel, of Andral and Rostan, of Grisolle and Barth. In the rigid school of the Medical Society of Observation, and of its illustrious president, the astute and penetrating genius of Dr. Power found a severe but salutary discipline, and he

always referred to the evenings spent in its exercises as among the most delightful and profitable of his professional life. Its training developed his capacity for the systematic study of disease, and fitted him to become an example and a teacher to the medical students of his native city.

Enthusiastic in his pursuit of knowledge, he immediately, on his return home, sought and obtained anew the post of Resident Physician in the Almshouse Hospital, and only relinquished it when, after nine months' service, he was honoured with the appointment of Visiting Physician to the same institution. As a consequence of the disgraceful custom of allowing political partisanship to interfere with the administration of public charities, Dr. Power was removed from his office on a change in the direction of the almshouse; but subsequently, in 1841, was reinstated. In this and in the following year he delivered two courses of lectures on the Physical Exploration of the Chest at the Baltimore Infirmary, and under the auspices of the Faculty of the University. They were well attended, and gave him considerable reputation for attainments and skill in lecturing. His health now became precarious, and he felt obliged to quit his post, both as clinical teacher and lecturer, nor did he resume its duties until 1844. In the following year, he was appointed Professor of the Theory and Practice of Physic in the University of Maryland.

The influence of Dr. Power over the young men, who, as students or as assistant physicians, followed his daily instructions was unbounded. One and all caught somewhat of the enthusiasm which inspired their teacher and stayed him against the crushing weight of his disease. Before his time, we are assured, it was difficult to find candidates for the place of Resident Student in the Hospital, but owing to the interest with which he invested the duties of the office, and the reputation which the institution thereby acquired as a school of medicine, it was now only by an application of a year or more that candidates could secure their election. Even at this period, the physical sufferings of Dr. Power were such that he could hardly go up stairs without panting; yet his love of knowledge and his devotion to duty made him cling resolutely to his post, and point the way to others, although he did not hope long to tread in it himself. It is a sad, and at the same time a singular fact, that of the eight Resident Students who, in 1844-45, were his assistants, all but one preceded him to the grave! How painful a commentary is this on the deadly influences of our professional pursuits on life and health.

The career of Dr. Power as professor was a distinguished one. That it was singularly successful is proved by the large number of students whom he drew to the University; by the position he at once assumed among his professional brethren, and by the reputation he soon acquired as a clinical teacher in the College Infirmary. His thorough, systematic, and intelligent study of disease, his accurate diagnosis, and his mode of illustrating one case by another, interested his audience deeply, and accustomed them to observe for themselves. In a word, his whole system of analytical study, as he had learned it from the ablest teachers of Europe, attracted and delighted all of the maturer and best-furnished minds among his hearers, and gradually raised up a class of ardent cultivators of medical science, which has already given to the world some of the fruits of his instruction, and some earnest of their own future attainments. As a lecturer, we are informed, he did not aim at originality, but rested satisfied if what he taught, from whatever source obtained, was *true*. The confidence he inspired was boundless; for did he make a wrong diagnosis, or misstate a fact, he was the first to admit it when discovered, and to confess his error. His lectures were less remarkable for excellence of style and originality of thought, than for their presenting a calm and unbiassed arrangement of the opinions of others, corrected and modified by his own experience. In this, as in all else, he held truth to be more valuable than ingenuity, and a positive result than the most elaborate and cunningly devised fiction. Yet, in dealing with the errors and follies of medical systems, he was careful not to forget the charity which is due to the weakness of human nature, nor the distinction, too often lost sight of, between the doctrines he combated and the persons who propounded or adopted them.

Dr. Power's health had never been robust. Emphysema of the lungs, and a consequent derangement of the heart's action, had, for a long time, made active exertion fatiguing to him. As long ago as 1837, a pedestrian tour in Switzerland cost him several paroxysms of severe dyspnoea and palpitation of the heart with hæmoptysis; but he did not become seriously alarmed about his situation until nearly six years afterwards. In the autumn of 1843, he was obliged to seek relaxation in Cuba, whence he returned in the following spring, with his health materially improved. He continued better, in the main, although far from being vigorous, and from time to time he showed the effects of too close an application to his duties as hospital physician. His marriage in 1847, and his appointment in the University, which he had received two years before, exerted, doubtless, a very favourable influence upon his health, for he continued to perform with animation and a good degree of vigour his professorial duties, to draw around him a crowd of earnest and attached pupils, and in the social circle to win by his amenity, and interest by his varied talents, a large number of sincere and valuable friends. But the disease which had so long been baffled by skill and sedulous attention at length gave signs that it was obtaining the mastery. During the winter of 1851-52, Dr. P. was unable to perform his public duties, and, in February of the latter year, resigned his professorship. In the month of May, the writer of this notice had the satisfaction of an interview with his old companion. He was wasted and wan indeed, for consumption had nearly worn away his earthly dwelling; but his soul shone all the clearer, and brighter, and purer for its freedom from the clogs of flesh. One might well have expected to hear the devotee of science, and the ambitious teacher, mourn over the unfinished career he had run, and resent the defeat of his wishes. But his spirit had been chastened. Contented with his share of worldly success, without a syllable of complaint at the disappointment of his hopes, he could still take interest in the science which he loved, and find in conversation upon its progress a consolation for his own withdrawal from a share in its rewards. Resigned and cheerful, he awaited with patience, yet with strong desire, the moment of his departure; for, while he longed for a release from suffering, he did not disdain the world in which he had been permitted to fit himself for a better.

For three months after this interview he waxed feebler and feebler, but his soul was more and more brightened by a light from beyond the grave, and displayed to the last moment the calm hopefulness of one whose heart is fixed on Heaven.

As a student, Dr. Power was intelligent and industrious; as an instructor, he was faithful in duty, thorough in teaching, earnest in manner, clear in exposition, copious in illustration, convincing in argument; as a friend, he was sincere and constant; and, as a man, noble in his aims, pure in his means, a scorner of the false and hollow, and a lover of the real and the true. Thus, true to Heaven and to human duty, he lived respected even by those who did not share his love, and died as they should die who see beyond the grave an immortality of knowledge and of blessedness.

A. S.

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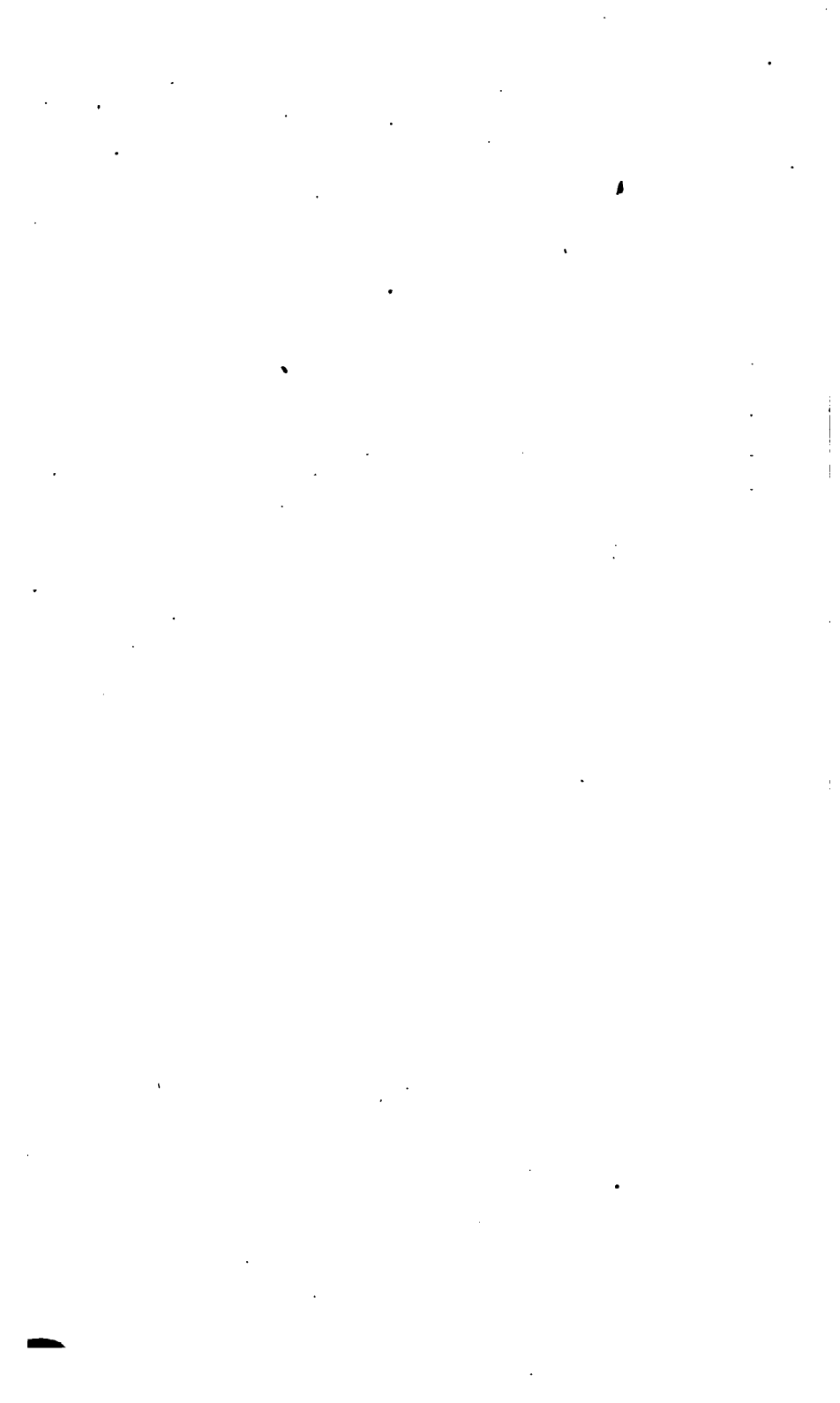
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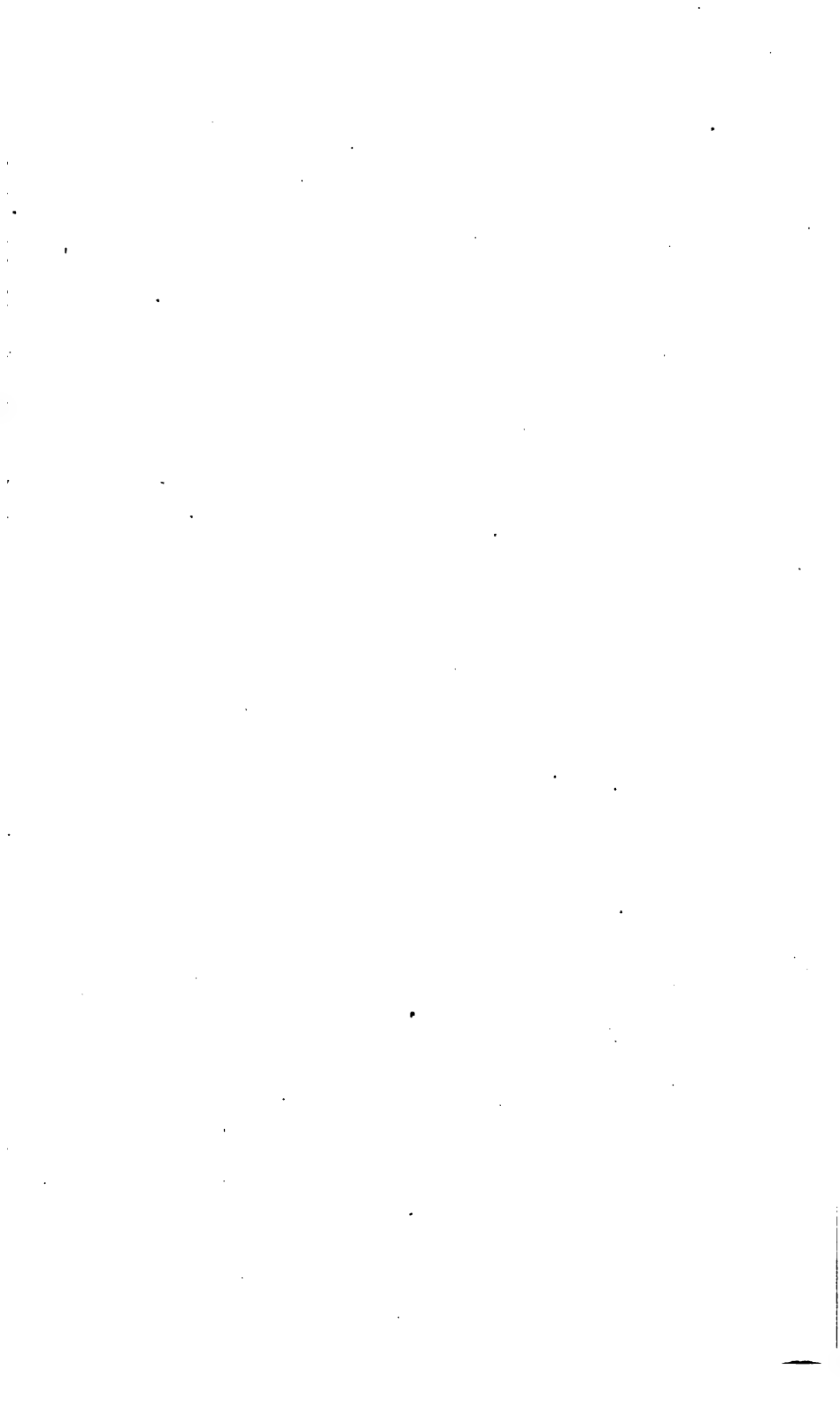
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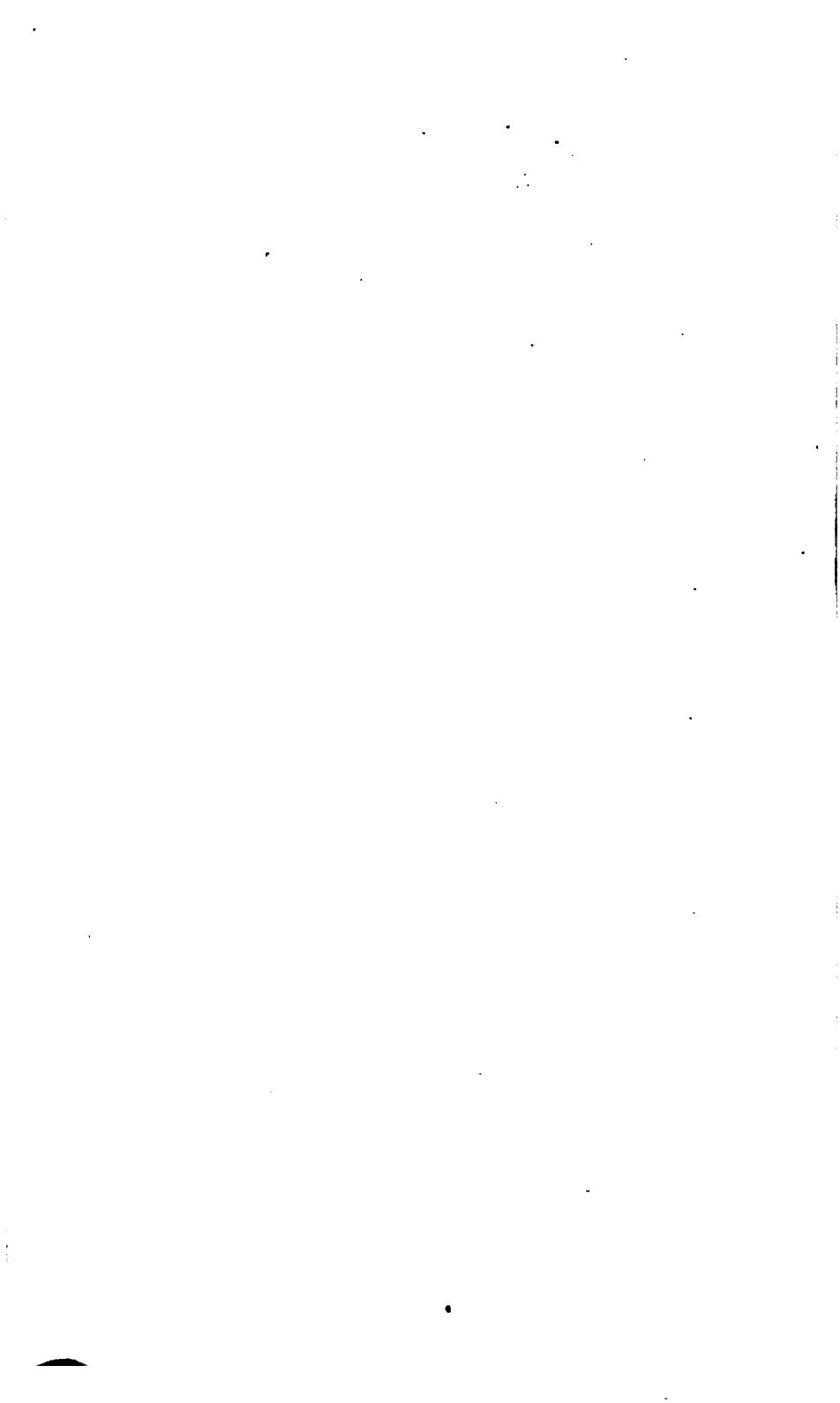
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